Inspiring Australian photographers

PHOTO REVIEW

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Mar – May 2023

Telling stories

RACHEL MOUNSEY

One thousand hours under the sea

PAM OSBORN

THE QUEST FOR LIGHTWEIGHT GEAR
OPTIMISE YOUR EXPOSURE SETTINGS
UNDERSTANDING VIDEO STANDARDS
MOUNT LOFTY BOTANIC GARDEN

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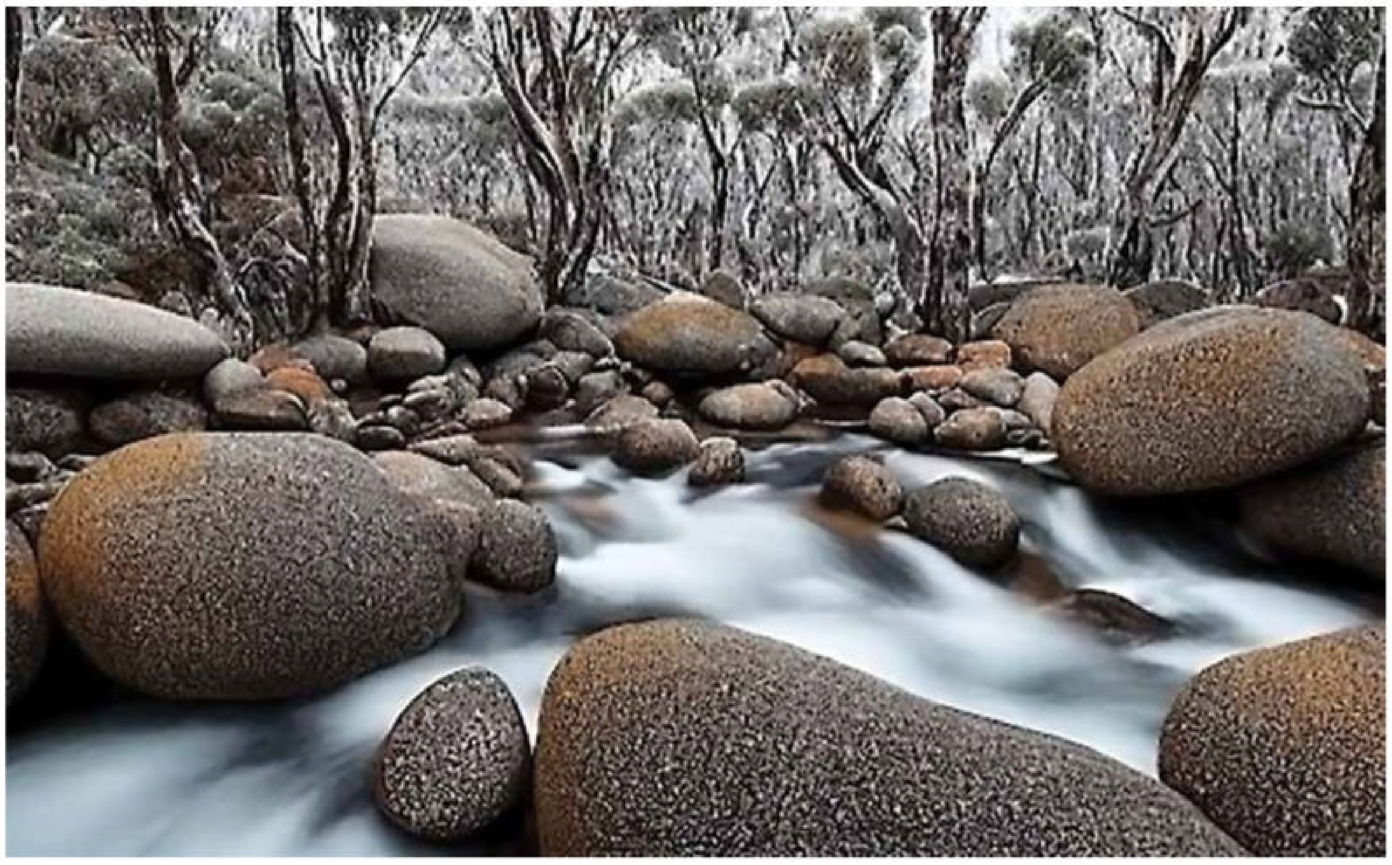
But is it real?



The picture on this page is of a place that does not exist. It was not taken with a camera, indeed it was not taken at all. It began instead as the following sentence:

"Granite boulders along a small stream with patches of clear water flowing through a Snow Gum forest in the Snowy Mountains of Australia on a stormy, snowy winter afternoon in the style of Ansel Adams using Kodachrome film to capture the muted colours."

I entered the above text on the DeepAI website's free Text to Image - AI Image Generator (**www.bit.ly/PR95editorial**).

The DeepAI needed about 8 seconds to produce a 768 x 512 pixel image. I downloaded and then opened the file in Adobe Camera Raw (the original is in JFIF format) where I applied ACR's Super Resolution to increase the size to 1024 x 683 for better magazine reproduction quality.

So, an image created by an AI was transformed into a larger version of itself by another AI.

If you're an illustrator or a stock photographer, the career implications of this strangely plausible image might send a shiver up your spine. But for landscape photographers like myself, it's likely to feel no more threatening than any other photo-realistic illustration technique.

What intrigues me about the current state of image generating AI is what it reveals about the kinds of patterns we humans find pleasing.

To produce anything worth looking at, the machine learning systems that we call AIs must be "trained" to discern patterns in material (whether words or pictures) that humans have in some way produced.

But whether it be the language we use to communicate, or the things we make pictures of, there is nothing the machine learning system receives as an input from us that does not have the distinct fingerprint of human discernment. Everything we produce is shaped and marked by our species' *umwelt*. (ChatGPT says the concept *umwelt* refers to "the unique way in which an organism interprets and interacts with the stimuli in its surroundings, based on its evolved sensory abilities, cognitive processes, and behavioural adaptations.")

I don't pretend to have any expertise about the wider implications of AI for humanity, but I am confident that those implications will be non-trivial. As someone who loves making photographs, I can imagine many ways in which AI will help me in post production and asset management but it's not immediately obvious to me how it could be of much use when I'm out picture-taking.

I've enjoyed playing around with some of the many text-to-image AI services now appearing on the internet and I've already had some moderately pleasing results too. But typing out various descriptions to prompt an AI is not even remotely as rich and satisfying an experience as picking up my camera and going out in the world to see what I might find.

When she was young, photographer Rachel Mounsey said she was a dreamy little kid who, long before she owned a camera, was entranced by looking at old family pictures. Please turn to page 4 to learn more about Rachel's journey and of course to see a selection of her images.

Perth-based photographer Pat Osmond can spend up to seven hours a day chasing the colourful denizens of the underwater world that inhabit her favourite Indonesian reef. Steve Packer, who talked to Pat about her work, tells the story in his feature 'One thousand hours under the sea' on page 18.

As usual our Technical Editor Margaret Brown managed to put in some time behind the lens for this issue's Locations feature. When you turn to page 30, you'll discover the many photographic opportunities awaiting you at Adelaide's spectacular and botanically diverse 97-hectare Mount Lofty Botanic Gardens.

Keeping you up to the mark on your photographic technique, Margaret considers that most fundamental of skills, the optimisation of one's exposure settings (page 40). Her Insider feature on understanding video standards (page 46) will be a welcome refresher for many readers. The focus of her Buying Tips feature (page 51), namely the quest for lightweight gear, will be of particular interest to those of us thinking about how we might pare back the weight of our camera bag without compromising the quality of our images.

We round out our 95th edition with a selection of Image Reviews that it was my happy responsibility to undertake (page 58). Speaking of which, may I encourage you to consider submitting a few of your own photographs. You can find entry details on page 62 and in the competitions section of our website.

Thank you for buying our magazine. We hope that it will leave you more inspired than ever to get out and about with that camera of yours. Happy picture-taking!

Don Norris
Editor

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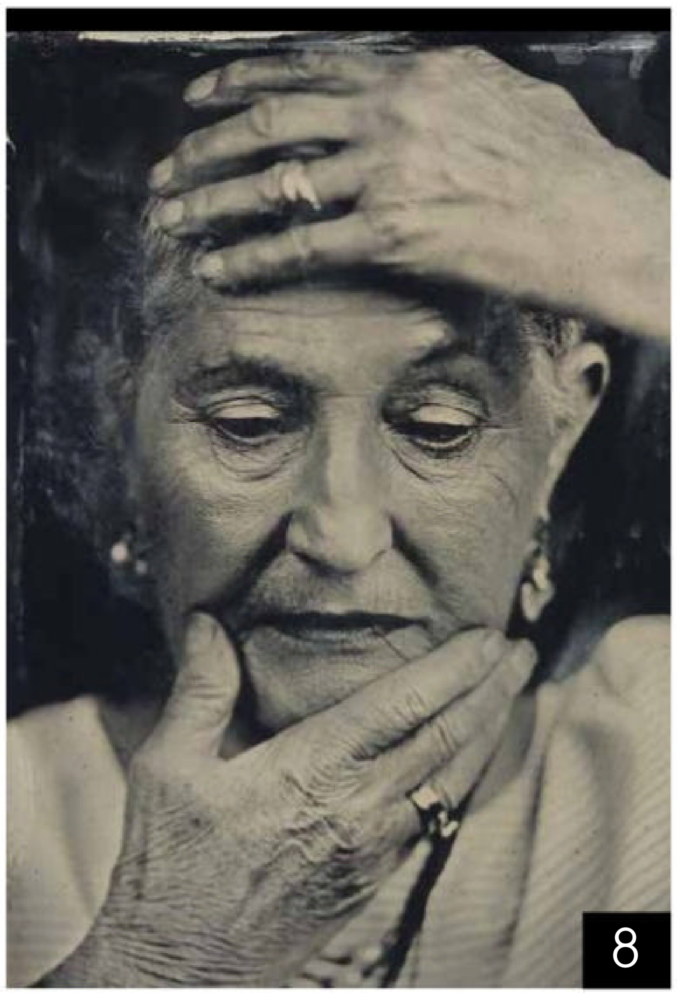

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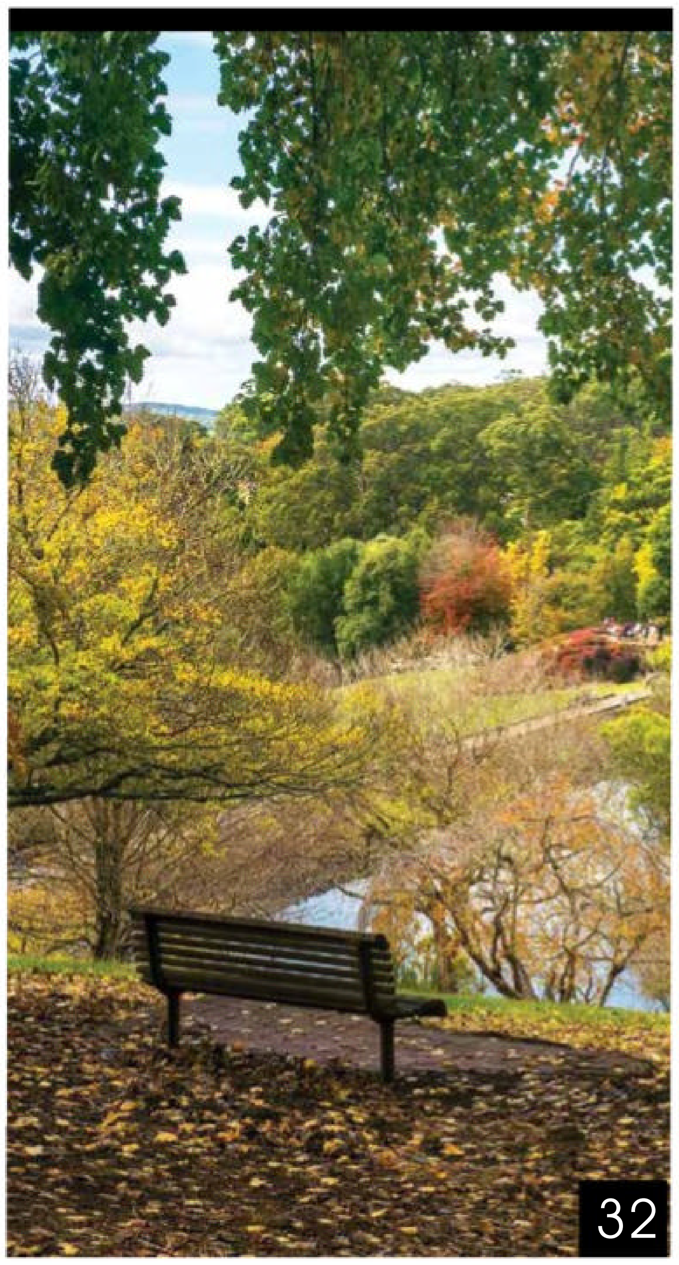

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on the cover

A free swimming sea anemone comes to rest on a sea grass frond.
By Pam Osborn
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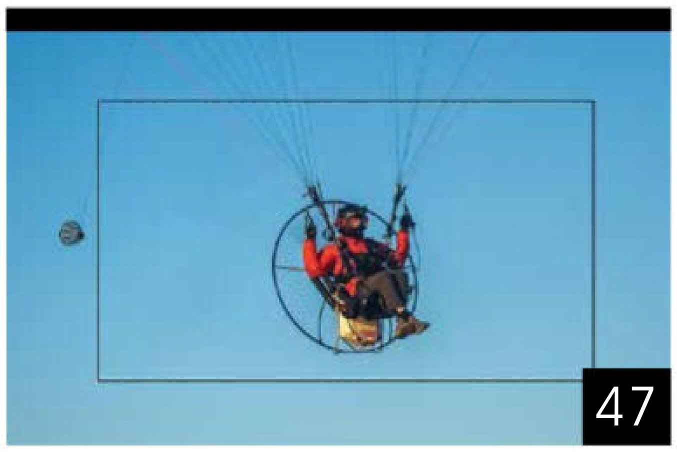
Media Publishing acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples.

INSIDER



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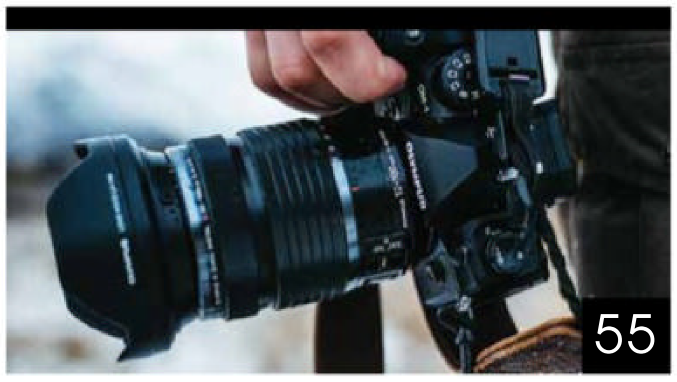

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Editor
Don Norris | dnorris@photoreview.com.au

Technical Editor
Margaret Brown | mbrown@photoreview.com.au

Contributors
Steve Packer

Creative Director
Melissa Kallas

Accounts Manager
Kerrie Pook | mpaccounts@photoreview.com.au

Publisher
David O'Sullivan | dosullivan@photoreview.com.au

Media Releases
edmail@photoreview.com.au

Advertising
contact@photoreview.com.au

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melissa@cirasadesign.com.au

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Telling stories

RACHEL MOUNSEY'S LOVE OF PHOTOGRAPHY FIRST APPEARED WHEN SHE WAS JUST A DREAMY LITTLE KID GROWING UP IN MOE, VICTORIA.

Don Norris

'I was nosy as a small kid,' says Rachel Mounsey. 'Once I stole the neighbours' letters out of their letterbox. I didn't open them of course, but took them home, just so that I could hand deliver them – and get a look inside their houses. I guess I've always wanted to look in other people's houses and find out about their lives. I really liked that. And I really liked meeting people.'

Rachel grew up in the Victorian town of Moe during the 1980s. It was still mainly an industrial town where most of the workforce was employed in the electricity sector's power plants and brown coal production. 'Mine was a typical working class family, you go to school, come home, you don't over dream. But I was a dreamer, and liked to get lost in my imagination, drawing and writing and if I wasn't lost there I'd try and get myself lost in the bush probably for the adventure of it.

'I spent a lot of time rummaging through my parents' old suitcase full of photos. There was something about the photos that captured our everyday life as it unfolded that fascinated me.'

By the time she was in Year 11, she knew she wanted to do visual arts. 'I was really excited to be able to learn the language of the visual arts,' she says, 'I was made to play basketball, whereas I wanted to dance or do artistic things. But it was sort of like, you just follow what your brothers do. And I was always an artistic little daydreamer kid.'

While she wasn't particularly interested in photography during her high school years, she still remembers playing with pinhole cameras and particularly how she enjoyed making contact prints in the darkroom.

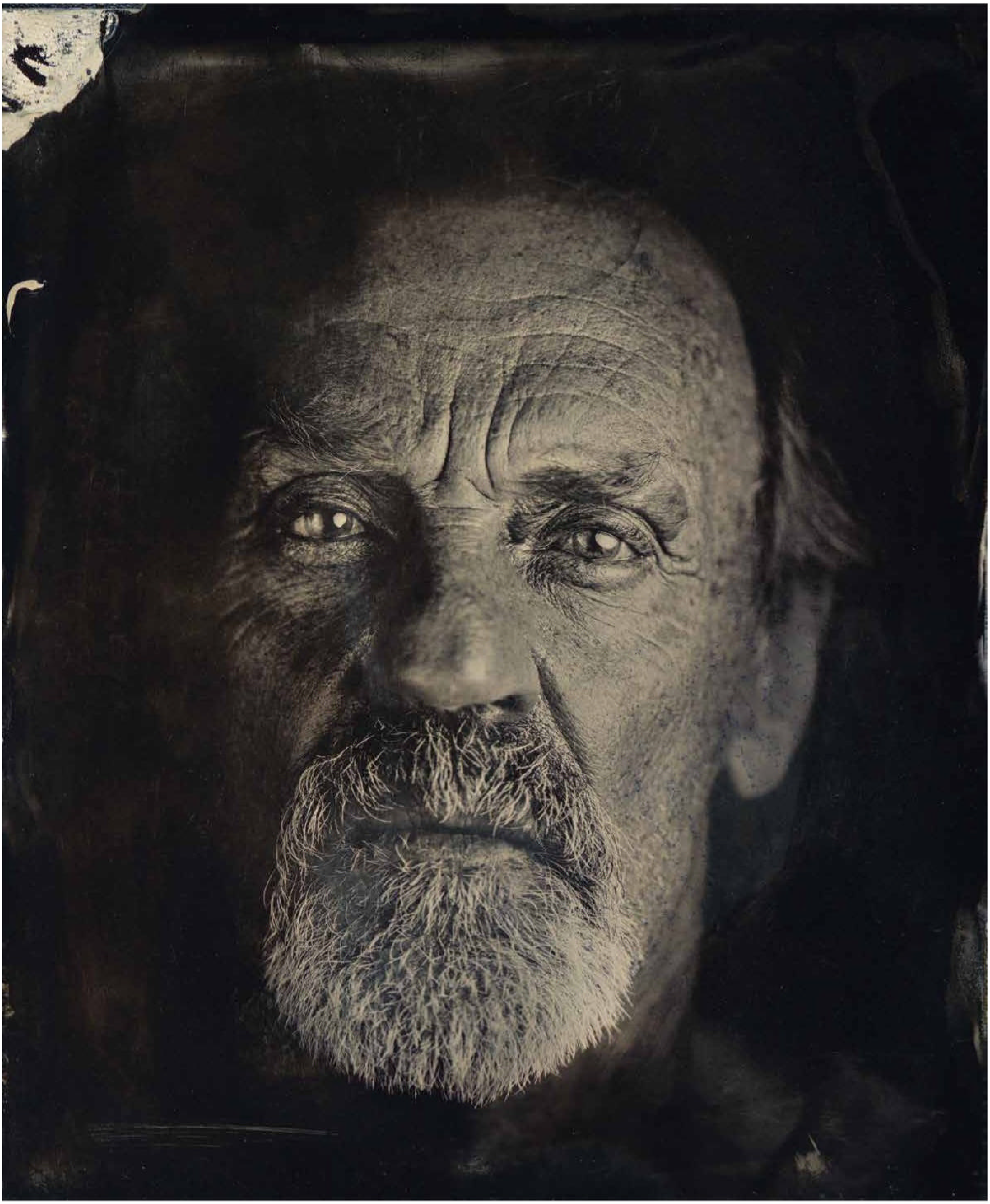
After high school she pursued a bachelor in performing arts at Victoria University. As part of their studies, students in the program would often use photography to document their performances and produce posters. And once again, she had a chance to experience the magic of prints coming to life in the developer. However, what would really stick with her from those years was discovering the works of Diane Arbus, Cindy Sherman and Mary Ellen Mark in the uni library.

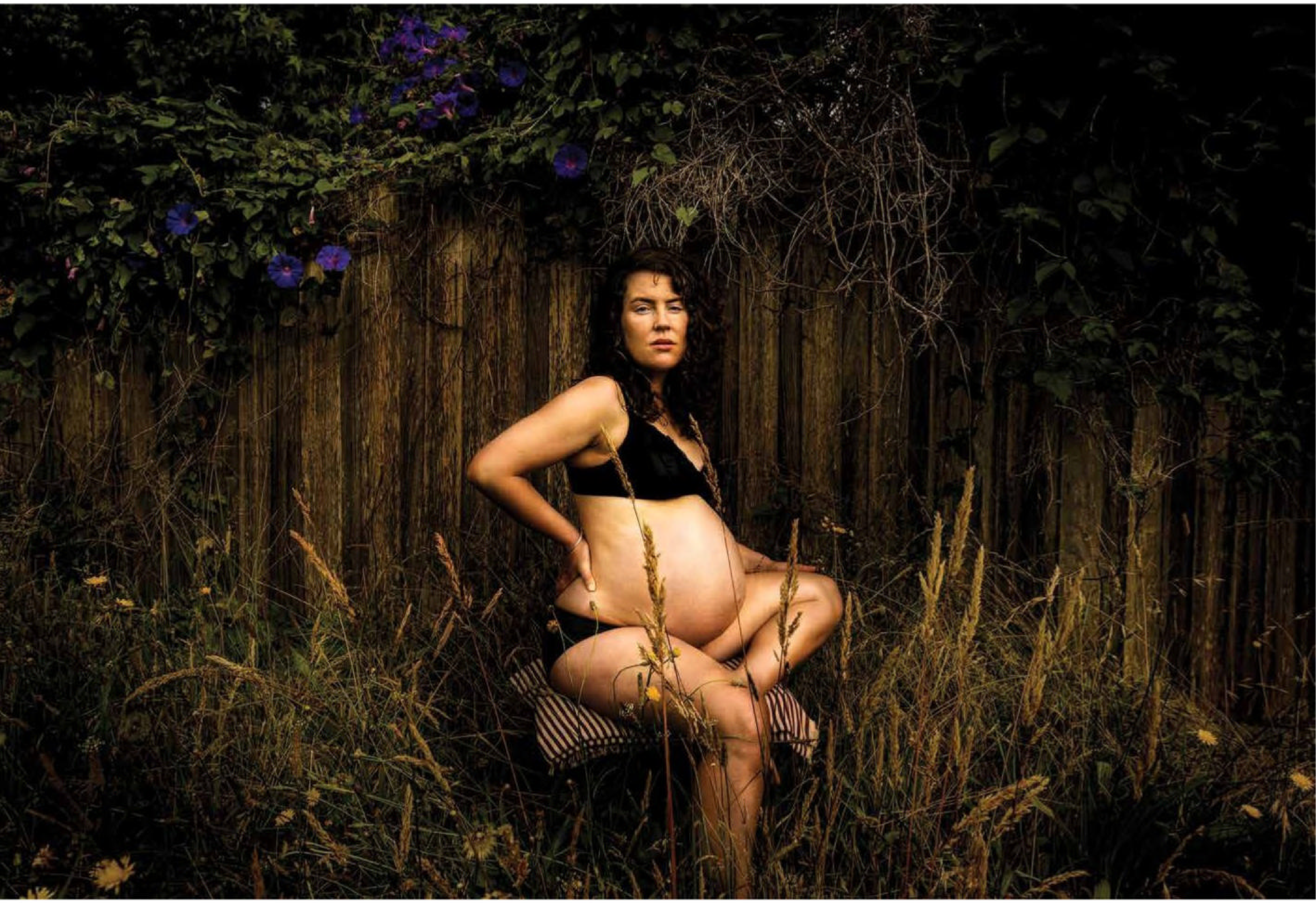
'I remember borrowing those books again and again. I was impressed by what these women were doing with photography,' she says. She loved the way Arbus would just knock on doors and take pictures, how Mary Ellen Mark was such a remarkable street photographer and the cinematic imagination of Cindy Sherman's self portraits.

Previous: Bruce at Gipsy
Left: Remo

It just all kind of came together with this idea of the visual and, and the story.

Clockwise from top: Lois, Hope and Gypsy
Right: Jim





Hannah at 9 months

…it creates a connection and a relationship.

Although she had not yet begun to think of herself as a photographer, after finishing her degree, she bought a little Super 8 movie camera and a Polaroid instant camera and spent time travelling and working in the desert (on a road gang), while also writing and making little zines about her experiences.

'My photography was kind of there,' Rachel says, 'but it didn't really start until later, when I was living in Spain. I was living up in the mountains when one day, going over my old zines and journals, I realised I had an eye for photography and visual storytelling. I decided if I really learnt the craft I could continue to document more deeply with purpose.'

With the realisation now crystalised, she threw herself into learning her trade. In a way she was making up for lost time; for all those years travelling when she could have been taking pictures.

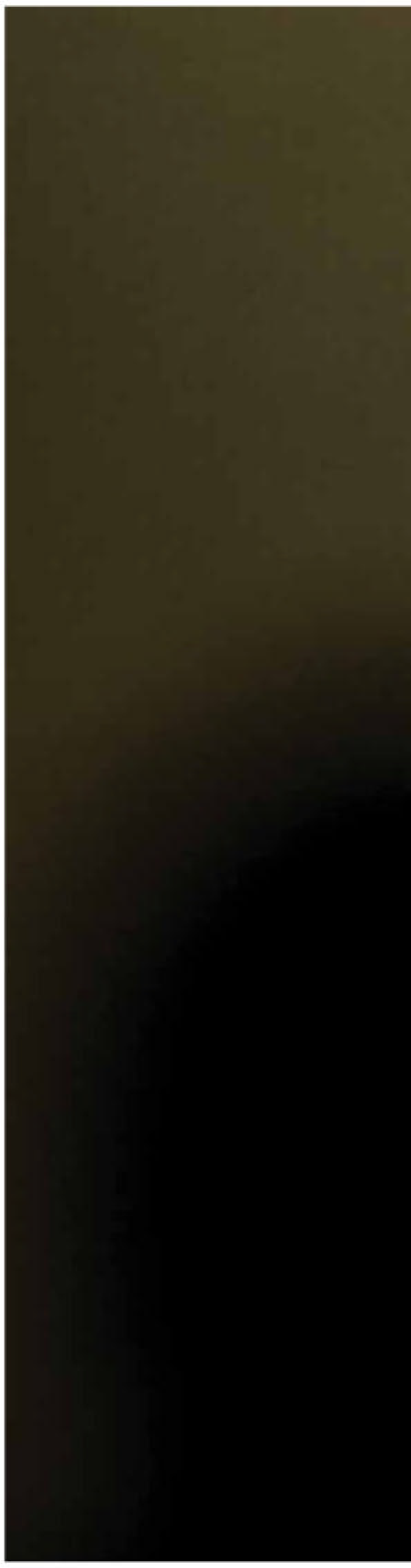
'I travelled and I've made zines. And I was photographing the whole time anyway,' she says. But it hadn't felt like a thing, let alone a career – until the realisation hit her.

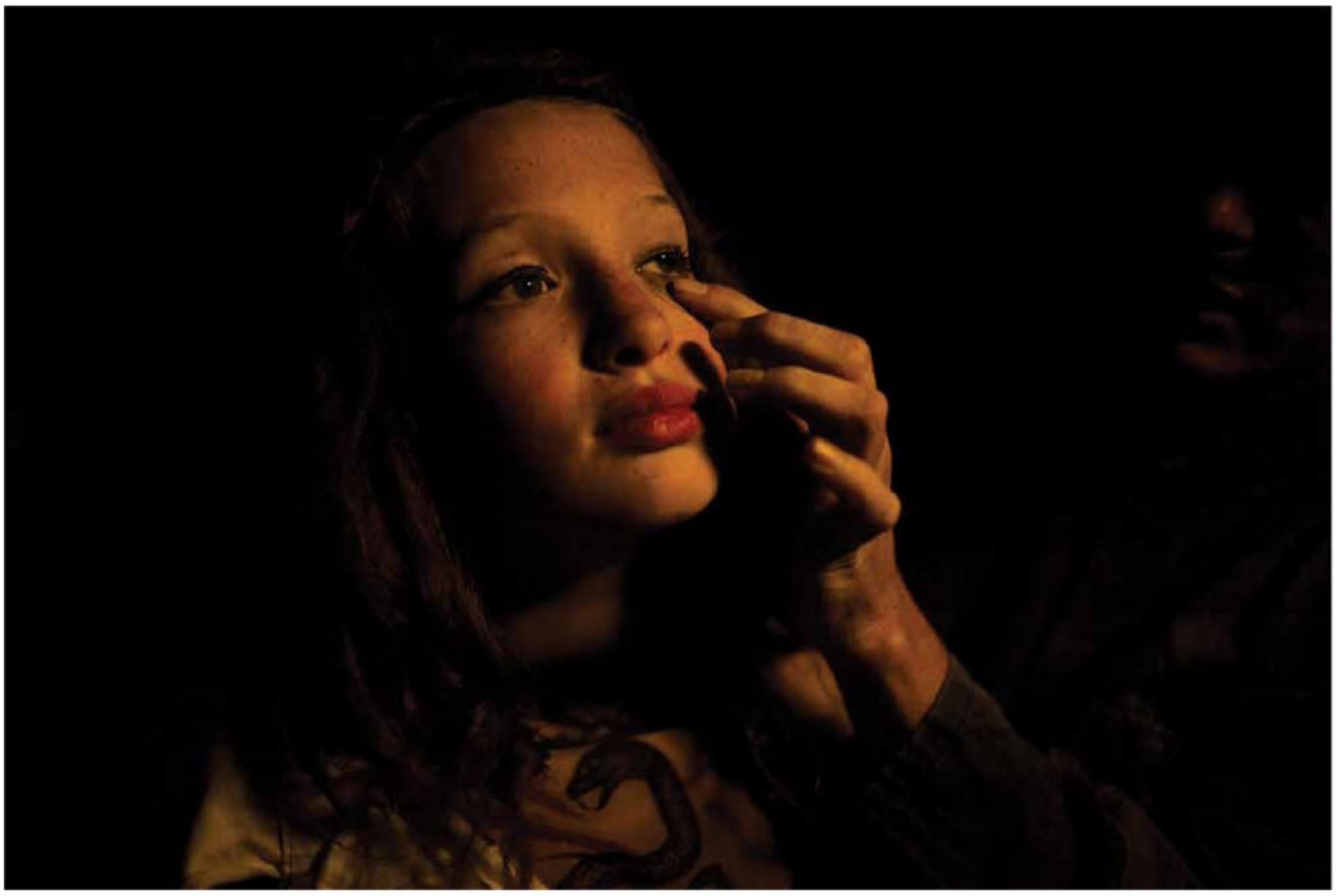
'Oh, yes, storytelling and photography… They match. It just all kind of came together with this idea of the visual and, and the story. It just kind of gelled,' she smiles. 'I was a bit of a slow learner.'

Not long after returning to Australia, she settled in Mallacoota, Victoria's easternmost township. With a population of around a thousand (outside of Christmas and Easter), it is both very small and very remote. But it was the right place to raise kids with its bush and beaches. And it was the right place for someone who had a deep appreciation and affinity for life in a small, rural community.

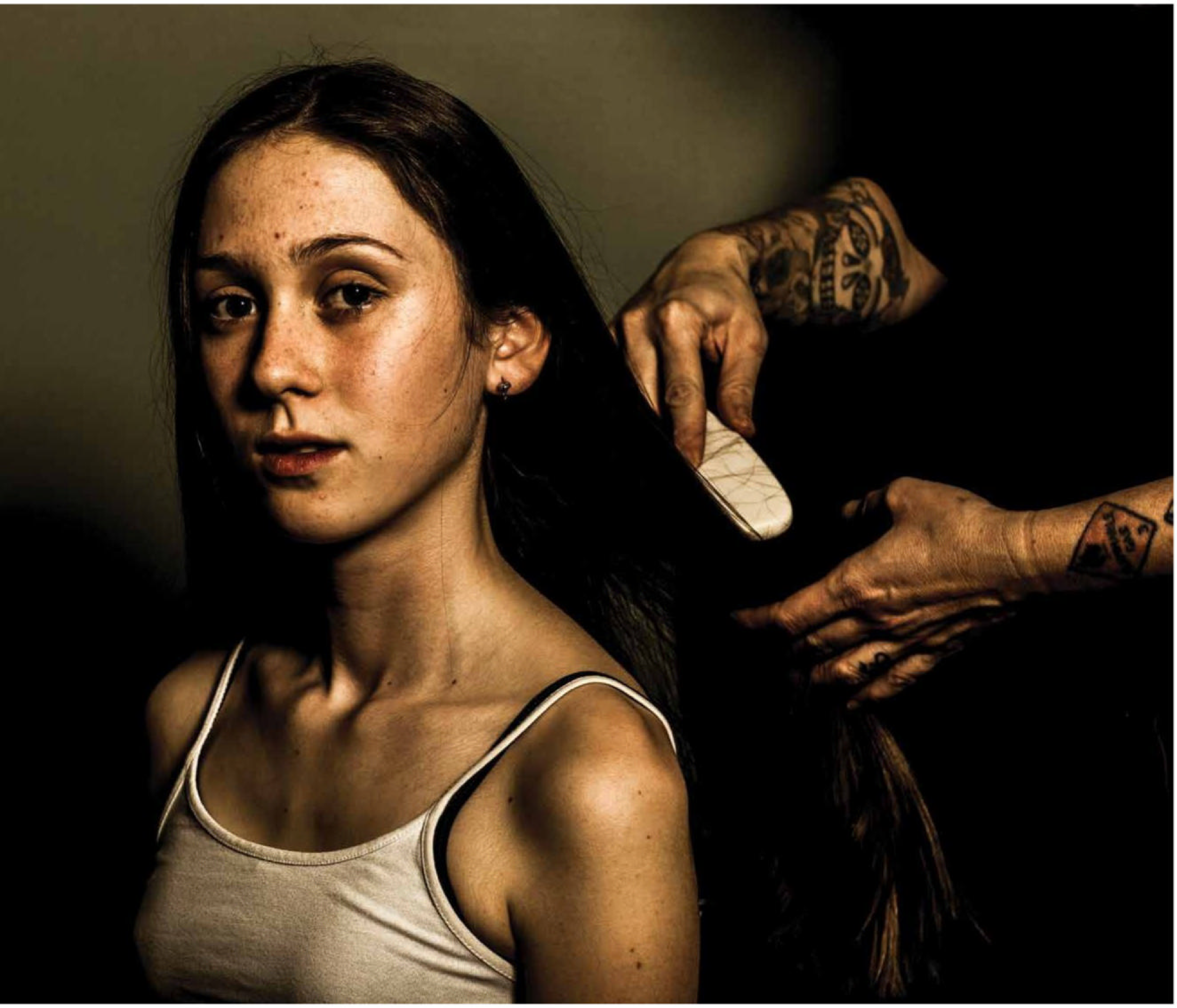
Although she had no journalism training, her experience turning out zines and her passion for photography came together as she began documenting her adopted community. It was only natural that when she noticed an ad for a newspaper journalist in her region, she should apply immediately.

'I didn't know how I was going to get myself into newspapers,' she says. 'But I knew that that's what I really, really wanted to do.' And not long after she had applied, she got a call. 'The editor asked - can you write? I said "of course I can." So on that same day, I had an appointment in Canberra and I knew I had to find a story. So I called up a friend who's a wildlife carer for orphaned (roadkill-mum situation) joeys. She lived just off the Monaro and on the way back from Canberra on the Sunday I got the pictures and the interview,' she says, adding, ' I locked myself away in a hotel room in Cooma, banged out the story and made sure it was in the inbox of the editor by 5 a.m. Monday morning.'





Above: Matsiya
Right: Chilli gets her hair brushed



Unsurprisingly, she got the job.

For the next couple of years, she made the 100 km drive from Mallacoota to Bega on an almost daily basis. ‘I was knocking on doors, asking people, “can I do a feature on you?” I worked so hard, but I just kept pushing myself.’

Asked about her gear, Rachel says that while she uses her Canon 1D X Mark II for many jobs, she also likes to mix things up with her Chamonix 4x5 field camera when she’s shooting landscapes, or her Horseman 4x5 when she’s doing portraits. And she’s not restricting herself to sheet film either. For some time now she’s also been experimenting with hand-tinting photographic prints and making images with two 19th century wet-plate processes – Tintypes and Ambrotypes.

She likes the old technologies not only for the ethereal qualities they impart to subjects, but because each image is utterly unique thanks to the vicissitudes of the fiddly processes. For her the intrinsic flaws and mistakes of wet-plate photography are plusses. ‘A photo becomes its own little world in itself and tells its own story,’ she says. ‘People want things to be so perfect but even though I'm a perfectionist, I don't want perfection in these and I think that they suit me. They get along well with me.’

Along with the inherently imperfect old processes, making large format images on wet plates that have an ISO of about 1 also imposes a salutary time constraint, namely long exposures. ‘It slows time down,’ she says. ‘I love that because it gives me time to sit with somebody and talk to them and really compose the photo with them and get to know them. One of the reasons that I do photography is because of the storytelling element. And so for me, it creates a connection and a relationship a little bit deeper than when you've got out the digital camera.’

I was always an artistic little daydreamer kid.

The question, Rachel says, is not a matter of which technology is "better" but rather which is the most appropriate for what she wants to say. 'I love digital because I love working in colour,' she says. 'You can't ask me to say which one is better. I love them both because they each have their own language. And I think that you can mix them up. If you do a Tintype you can scan it and go into Photoshop and pull out things. It's amazing the marriage that we've got now. It's a really exciting time to be in photography.'

After going through the trauma of the 2019 bushfires in Mallacoota and then the arrival of COVID and all it entailed, Rachel began to find her feet again last year. 'During COVID, you weren't able to go to anyone's house, even if you were in a regional area. We were still recovering from the bush fires, and I was trying to tell bits of our story but it was such a vulnerable time,' she says. 'It's only just this last year that I've started picking up pace a little bit more now.'

As well as doing a bit of newspaper work she's started moving in other directions including recently being awarded a one year fellowship at the State Library of Victoria. ''I'll be looking into the history of Moe and documenting my town during that coal era. I don't know what I'll find but that's a year's worth of work. And I'm hoping to be doing little stories for newspapers in regional areas and working more on my portraiture, which is something I'm really excited about. So I'll be going between Mallacoota, Melbourne and Moe!'

To see more of Rachel's work visit

www.rachelmounsey.com.au

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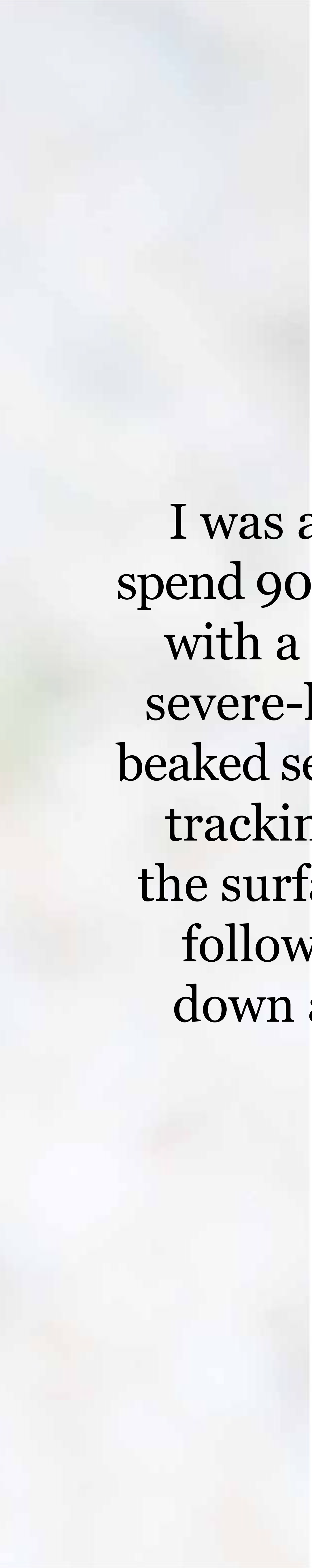
One thousand hours under the sea

SNORKELLING FOR UP TO SEVEN HOURS A DAY, PERTH'S PAM OSBORN HAS CHRONICLED HUNDREDS OF DIFFERENT FISH AND OTHER CREATURES THAT LIVE ON A SMALL INDONESIAN CORAL REEF.

Steve Packer



I was able to spend 90 minutes with a rather severe-looking beaked sea snake, tracking it to the surface and following it down again.

At first glance, the online book *Wakatobi Reef Life* looks like an underwater photographer's dream assignment. In fact, it was an epic, unpaid labour of love, and putting its photos of about 400 tropical fish and invertebrate species into a book was an afterthought.

Perth couple Pam and Wayne Osborn have been going to Wakitobi Dive Resort in Indonesia once or twice a year for 11 years (except when the trip wasn't possible due to COVID-19). On a typical day, Wayne has exercised his passion in retirement for taking underwater photos from offshore dive boats – 400 scuba dives and counting. Pam has sometimes gone with him. But much more often, she has strolled to the beach and jetty with her mask, snorkel and flippers, and entered the warm, clear water over the 'house reef' – a kilometre-long strip of seagrass and coral that drops off into deeper water beyond a sea wall 100 or so metres offshore.

'At first, I'd say to my husband, "I found this and I found that," and he wasn't very interested,' she says. 'But he thought I needed a camera, so I got a waterproof Panasonic point-and-shoot. The trouble was, condensation from the warm water kept fogging the lens, and I'd have to stop swimming every hour or so to recharge the battery.'

So Pam graduated to a Canon 5DS R in a Nauticam underwater housing. She also swapped her underwater torch for a more sophisticated Inon strobe and got a weight belt to make it easier to pursue her subjects for as long as one breath would allow. Being much less interested in wide-angle vistas than getting up close to creatures sometimes as small as a grain of rice, she has mainly used a 100mm macro lens and occasionally a 50mm macro.

As Pam has floated and flippered along behind the lens, time hasn't so much stood still as not mattered. She has been in the water for up to four hours in a session, and seven hours in a day, entranced by the richness and diversity of the sea life all around her. It has been estimated that she has spent more than 1,000 hours snorkelling alone on the reef with her camera.

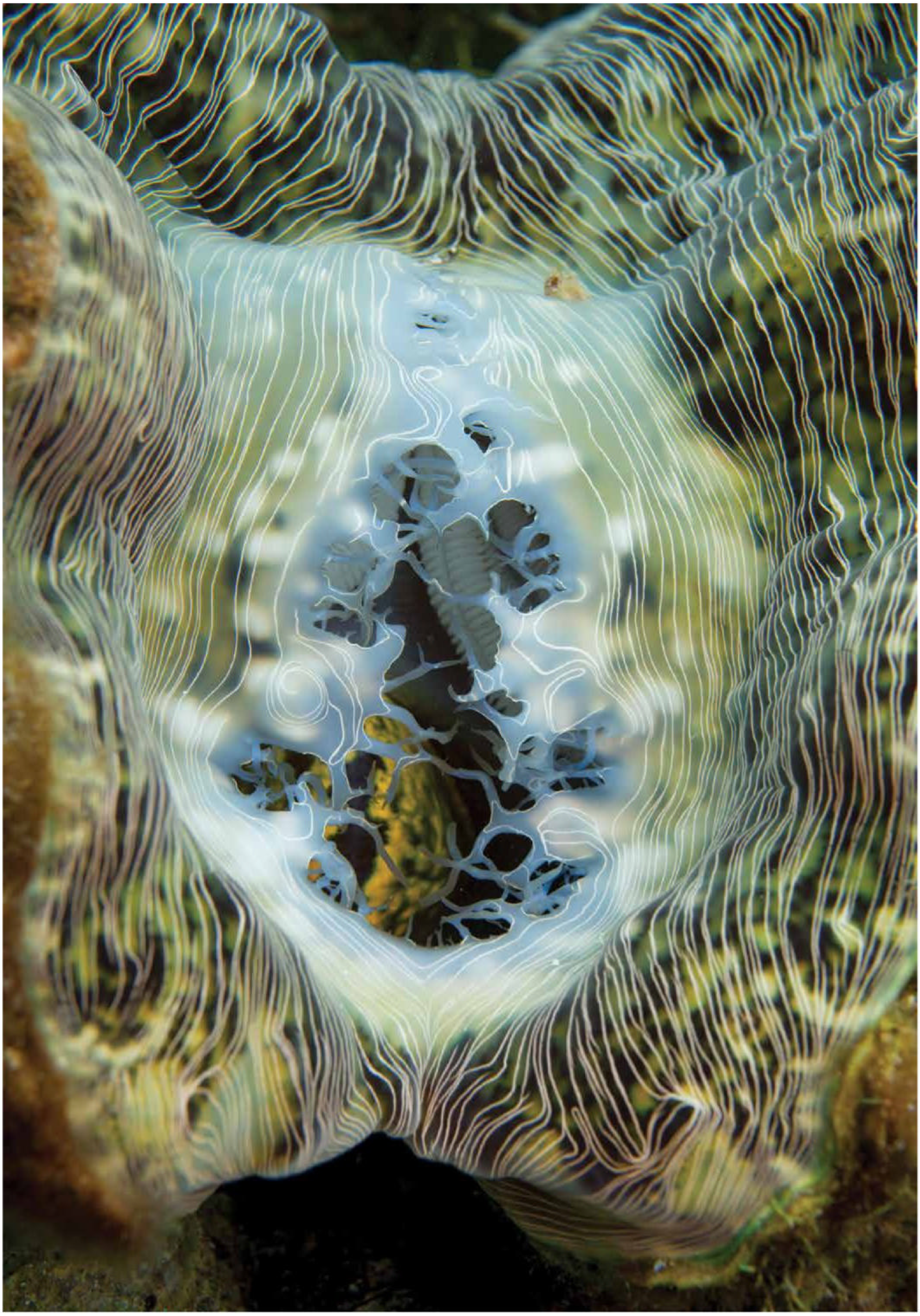
'Sometimes I'm floating in water less than a couple of metres deep and sometimes I'll dive down along the sea wall, where I can also see pelagic [ocean] fish.'

How deep does she go?

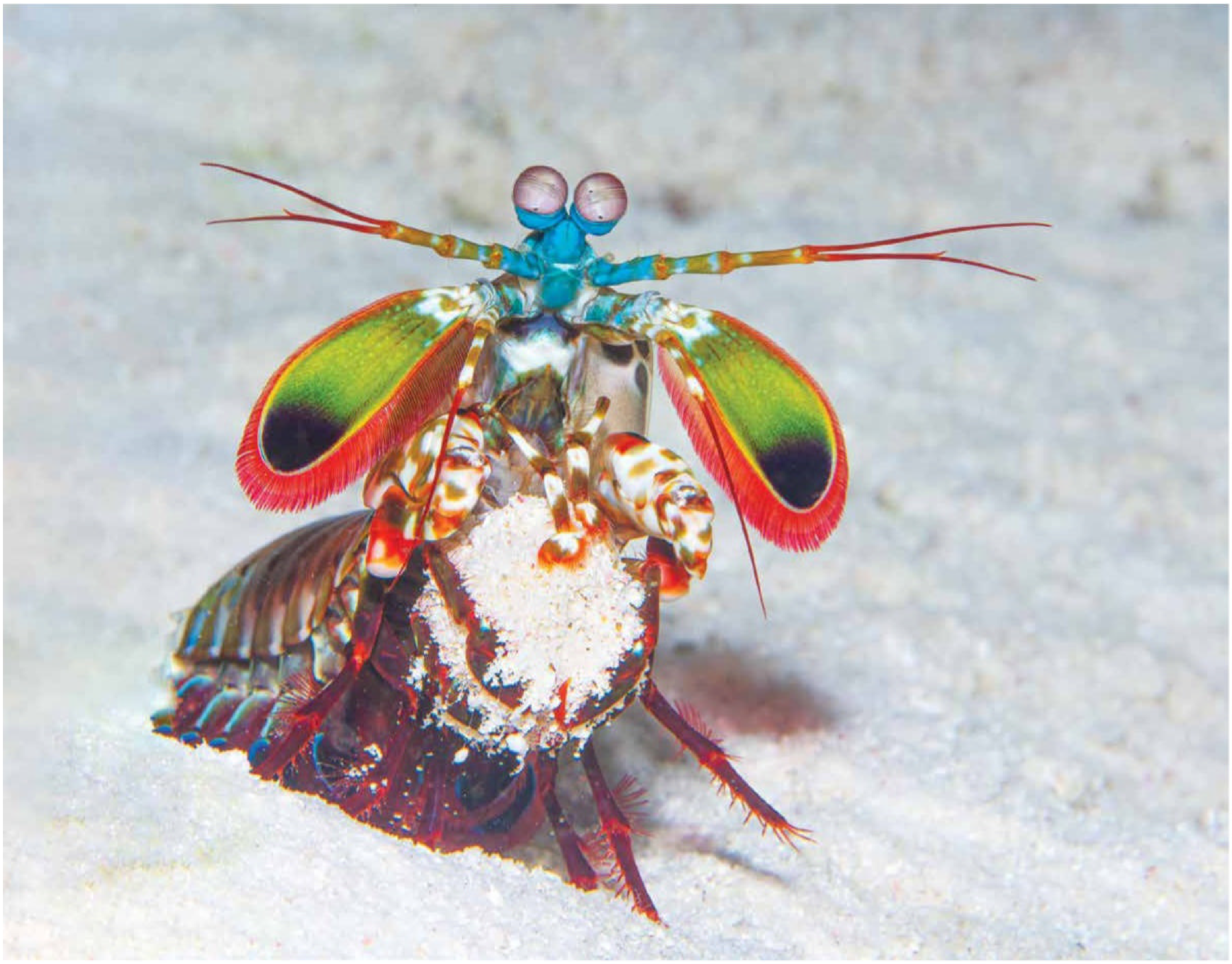
'I've never really taken any notice… maybe 13 or 14 metres,' she says. 'I've swum since I was at school and did a bit of competitive swimming at that time. The currents can get quite strong, but I don't worry about that. I know they'll take me along the reef and I often swim into them to photograph something beside me. If I'm swimming with the current, it will take me past it. Effectively, I'm trying to stay in one spot.

'I'm looking for things all the time and get lost in what I'm doing. When I do see something, it can take a while to get it. Sometimes the fish don't do what I want and I'm thinking, "Do you realise I need to go up for a breath of air?"'

Previous: A pair of curious Yaeyama clown blennies comfortably perched on leather coral.
Left: A free swimming sea anemone comes to rest on a sea grass frond.



Sometimes the fish don’t do what I want and I’m thinking, “Do you realise I need to go up for a breath of air?”



Left: Lintricate patterns in the mantle and siphon of a bear paw clam.
Above: With a bizarre appearance, this peacock mantis shrimp is one of the oceans' most efficient predators. They have lightning fast reflexes and the sharpest eyes on the planet. This shrimp was moving sand from its burrow.

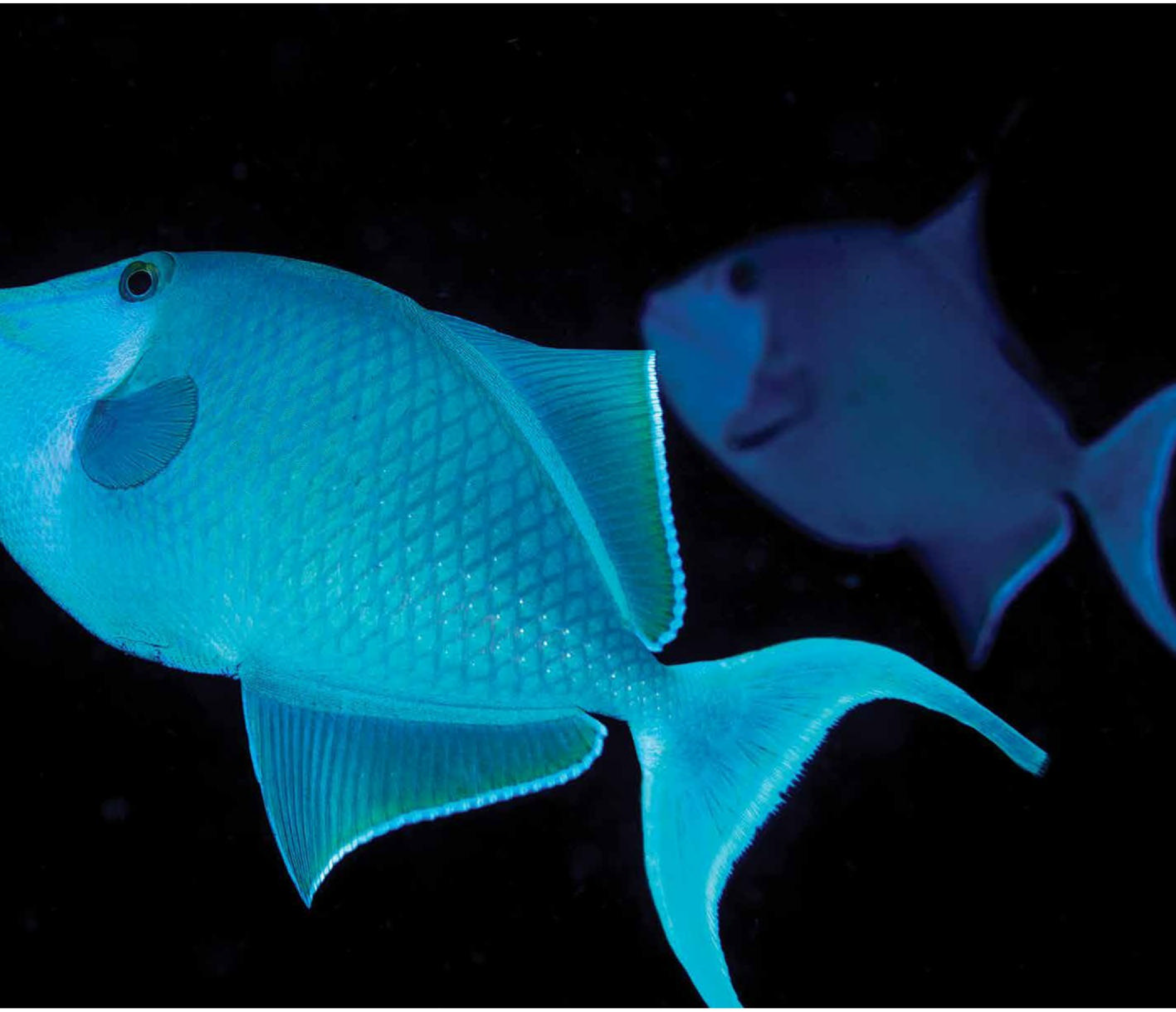
Wakatobi Dive Resort is in the remote south-east of Indonesia's Sulawesi, on the Banda Sea. Centred in a UNESCO-designated national park, it's devoted to marine conservation and showcases the famed marine biodiversity of the region.

'The amount of fish is incredible. They're everywhere,' says Pam. 'Whole schools of them along the drop-off and lots of babies in the nursery along the reef. Lots of turtles too. I try to swim alongside them when they come up for air, and I have to be careful because when I follow them down again, they can take me deeper than I think I might be.'

There are also moray eels, snake eels, shrimps, flatworms, slugs and many different shells with animals in them. 'I know the reef very well, but every time we go back, there are new things to see. It's partly a seasonal thing. On one quite recent trip, it was a tiny algal octopus, and I was able to spend 90 minutes with a rather severe-looking beaked sea snake, tracking it to the surface and following it down again.'

She says she doesn't normally bother the venomous sea snakes and they don't bother her. 'I've always been told they can't bite you because they can't open their mouths wide enough. Mind you, Wayne is renowned for his whale photography, and when we've been up in Exmouth Gulf [in Western Australia] doing that, we've seen sea snakes with fish in their mouths.'

The Osborns donate their whale photographs to friends in Perth who are whale researchers who use them to identify individual animals and track their movements. Wayne does the book compiling and has also produced the online book 'Reef Fishes' from his diving at Wakatobi, in other parts of Indonesia and around Australia. It's important to the Osborns that anyone can look at the books free of charge. They help people identify what they see when they're doing their own diving and snorkelling, and they raise awareness of the need for marine conversation all over the world.



A pair of red-toothed triggerfish.

Opposite: Lionfish with their feathery poisonous spines are formidable ambush predators with few enemies. Hovering in mid water waiting for prey.
Left: A curious striped sweetlip.
Below: A snowflake moray eel extends from its protective cavern.

'Some of the statistics about our human impact on our seas are quite depressing,' says Pam in the preface to the photos in *Wakatobi Reef Life*. 'It's been reported that 90% of the large fish are gone from our oceans. 30% of the fish stocks that we humans consume have collapsed. One billion people rely on fish for their main animal protein source. They are mainly from third world countries where alternative means of feeding families aren't obvious or available. Whether such media reports are selectively sensationalised or not, there seems to be ample evidence that life for many species is not assured and there is a need for intervention.

'That's one of the reasons I am a strong supporter of environmentally sustainable diving operators such as the Wakatobi Dive Resort. Prior to its establishment, the surrounding coral reefs bore a heavy level of artisanal fishing. The jobs and regional income from diving tourism have provided other options for the local communities and places a value on sustaining an ecosystem that will continue to attract divers. A small step forwards perhaps among the many needed in a very long journey ahead.'

Summing up her endless fascination with the Wakatobi reef, Pam says 'I am a believer in the simple principle the more you look, the more you see.'

More of Pam's Wakatobi photos, and all of Pam and Wayne Osborn's many travel and wildlife photo books, can be seen at
W www.bit.ly/pwosborn

A nembrotha nudibranch (naked gilled sea slug) crawling across a coral reef. This animal breathes through the exposed gills on its back.

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Mount Lofty Botanic Garden

OVERLOOKING THE PICCADILLY VALLEY ON THE OUTSKIRTS OF ADELAIDE, THE MOUNT LOFTY BOTANIC GARDEN IS FAMOUS FOR ITS SPRAWLING GULLIES AND DISPLAYS OF COOL-CLIMATE PLANTS.

Margaret Brown

Why Visit?

People come to the Mount Lofty Botanic Garden for many different reasons. Some come to see the plants; others for bird-watching and photography and still others to explore the walking trails that run through the 97-hectare site. These range in difficulty from wheelchair-accessible paved paths to relatively steep climbs.

The maze of paths also offers different horticultural experiences. The Nature Trail shows some of the native flora that would have populated the region before European settlement. (It's worth noting the iconic Heysen Trail passes through this section.)

The Lakeside Trail, which was officially opened in 2015, was designed to provide access for everybody, from young families with prams to the elderly with limited mobility. It also caters for people with limited understanding of English and people with disabilities, their families and carers. Dotted along the one-kilometre loop around Main Lake are eight artworks, each with a different message about people, plants and the environment.

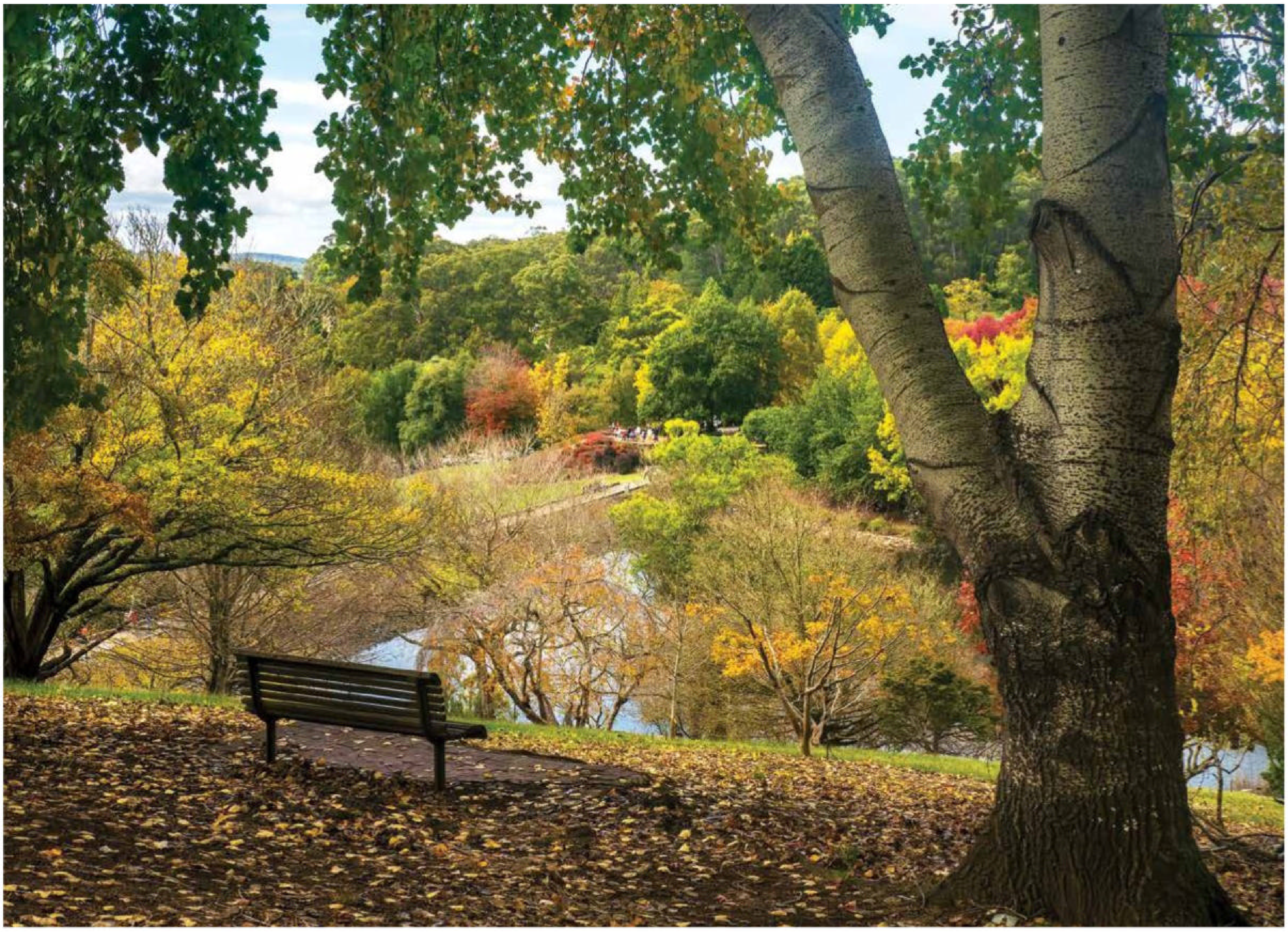
The Fern Gully boasts one of Australia's richest fern collections and includes tall tree ferns as well as vines and shrubs from Australia and New Zealand in a rainforest environment, while the South East Asian Gully boasts a display of vibrant camellias and other plants that originate in Southeast Asia, Japan and the Korean Peninsula. In contrast, the South American Gully focuses on plants with shared origins from the ancient supercontinent of Gondwana.

There are also sheltered meeting places, spreading lawns for picnics and play areas and panoramic viewpoints over the surrounding valleys and hills. Many of these places are used as settings by family and wedding photographers.

The Garden is home to a wide variety of birds and animals that come to feed on the Gardens' flora. Nectar-eating birds can be found among both the native and introduced plants, while it's common to see water birds and tortoises in the ponds. Flying foxes may also be seen resting in the trees at certain times of the year. Visitors are asked not to feed the wildlife as it can have detrimental effects on animals' behaviour and survival strategies.

An Eastern Spinebill photographed in the bushes, using a 100mm focal length lens. Many birds are accustomed to human activity, making them relatively easy to photograph.

In quieter periods, photographers often make use of the Gardens as backgrounds for portraits. (The portable lighting seen here should only be used when there are few people using the path.)



Above: Seating is provided along the trails in places that allow panoramic views over the landscape
Lower left: Massed plantings of annuals provide flowers that attract birds and insects, even in the cooler weather. They also make attractive subjects for photographers.
Lower right: In autumn the deciduous trees and shrubs are richly coloured, providing opportunities for close-ups like this, even with simple equipment.

When to go

The Mount Lofty Botanic Garden is open year-round between 7:15 a.m. and 7:00 p.m. from December to March, closing at 9:00 p.m. from Thursday to Sunday and on public holidays during this period. From April to November the opening time on weekends starts at 9:00 a.m. During this period, closing times are 5-5:30 p.m.

Visitors can expect something interesting to see and photograph during every season. Spring is popular for the mass displays of magnolias, rhododendrons and camellias, particularly in Magnolia Gully. Autumn provides panoramic displays of scarlets, yellows and bronzes among the non-indigenous deciduous trees and shrubs.

In winter the Garden is often shrouded in mist and fog, but the stark, leafless branches can create attractive photographs when contrasted with the softer ferns and grasses. Birds are often easier to photograph during this time.

Many Adelaide residents come to the Garden in summer to escape the heat. One of the coolest spots is Fern Gully, which contains one of the richest fern collections in Australia. It's a great spot for shots of tall tree ferns and taking close-ups of curling tendrils and mosses.

Getting there and getting around

The Garden is roughly 25 minutes' drive from Adelaide's CBD and reached by following the Princes Highway and National Highway M1 to the Crafers exit. From there, you can take the Summit Road to reach the upper car park, or Piccadilly Road/Lampert Road for the lower car park. A bus service is available from Currie Street in Adelaide; details are available at www.adelaidemetro.com.au.

There are four wheelchair-accessible parking spots in the lower car park and three in the upper car park. The Lakeside Trail, which offers universal access, is reached via the lower car park. Funds collected from ticketed parking directly support the garden's world-class botanical collections, and education and conservation programs.

On popular days, both car parks will fill up quickly, so visitors are encouraged to arrive early to get a spot. Ticketed car parking is available using coin-operated ticket machines, some of which accept credit and debit cards. Bus parking is also provided for tour groups.

What gear to take

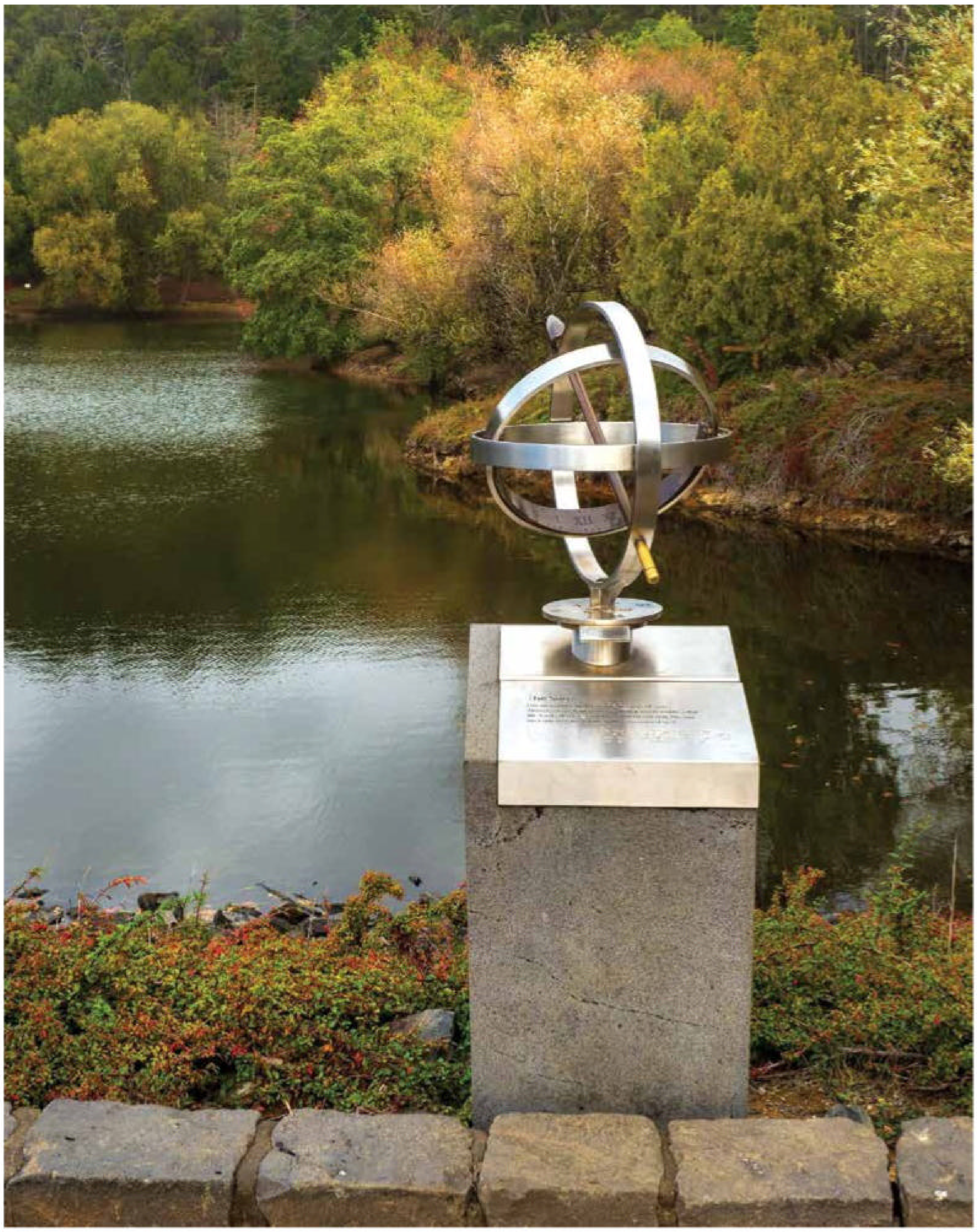
The gear you take will depend on your photographic expectations and what you plan to do as well as the prevailing weather conditions. Weather resistant cameras and lenses will be needed when it's wet and/or foggy and can be useful if you plan to go for longer walks if conditions are changeable.

Lens choices will depend on what you want to photograph. Longer lenses (at least 200mm) will be needed for photographing birds but standard zooms will be fine for snapshots of the kangaroos and reptiles, which are usually accustomed to people.

Wider angles of view (24-28mm) will be best for capturing panoramic views over the valleys and in the gullies and rainforest areas. You may also want lenses with 'macro' capabilities for shooting close-ups of flowers, leaves and insects.

A tripod will be necessary for time-lapse photography but otherwise non-essential since most modern cameras and lenses have good enough stabilisation to allow hand-held shooting in most of the situations you're likely to encounter. Be aware that tripods can get in people's way if they're set up on paths – particularly during busy times and when there are mobility-compromised people using the area.

Flash should be avoided when photographing birds as it can startle them and cause them to fly off. The very bright light emission can also disrupt their vision. However, it's fine to use flash as a fill-in light in dim conditions when photographing people and plants in the rainforest areas.



One of the sculptures alongside the Lakeside Trail. This one is titled 'The Sun' and its message in print and Braille reads: 'Life on Earth is only possible because of stars. Almost every element on earth was made inside a star. We feed off the energy provided by our star, the sun. And one distant day we will be consumed by it.'

Visitors can expect something interesting to see and photograph during every season.

Shooting tips

To make the most of the scenic potential of the area you should try to visit when there aren't too many people. Early morning is a good time, especially in the warmer weather, as the light is at a lower angle and, therefore, softer and easier to deal with.

Be aware of the potential for blown-out highlights and blocked-up shadows on bright, cloudless days and take precautions to deal with them. Check the histogram and adjust exposures to make as much of the scene's brightness range fit within the graph.

Don't stay home if it looks like being wet; there will still be plenty of potential for close-ups, including of birds. The lighting is often gentler when it's overcast, providing plenty of scope for editing your images and videos.

Whatever the weather, it's wise to capture raw files and/or try out your camera's HDR settings. Experiment with the dynamic range adjustments your camera provides if normal settings aren't producing the result you want.

Take lots of photos – and be aware of what's going on around you; sometimes the people are as interesting as the scenery. Be prepared to interact with other visitors; many people (photographers in particular) will welcome a chat and an exchange of ideas.

Below: This view overlooking part of the universally-accessible Lakeside Trail shows the various 'environments' in the garden, with part of the lake in the foreground and traces of morning mist remaining on the distant hills.

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Meeting the challenge

> “
> Matt immersed himself in the Olympus system, knowing that he would need to master it if he was going to do justice to the passion project

As a quick scroll through OM SYSTEM Ambassador Matt Horspool’s Instagram timeline makes obvious, there’s almost no genre of photography he hasn’t explored, experimented with and ultimately excelled at. If you had to pin him down, he’d probably describe himself as an adventure-travel photographer who not only loves dramatic landscapes, but also capturing the underwater world.

The Sydney native’s photographic career had its beginning back in 2009 when, inspired by years of poring over National Geographic magazines and watching travel documentaries, he set off on a trekking adventure through Peru and Patagonia with a little point and shoot camera.

By the time he returned from South America, Matt knew he needed to step up to a “proper” camera. Over the next seven years his kit gradually evolved until he’d reached the point that he was using a full frame DSLR. In 2017 he and a friend entered a competition called the Olympus Vision Project, the prize for which was a grant to work on a passion project using Olympus equipment. Happily, their pitch to explore and document remote regions of Kyrgyzstan and Tajikistan was accepted.

In the months before they set off on their expedition, Matt immersed himself in the Olympus system, knowing that he would need to master it if he was going to do justice to the passion project.

Master it he did and not long after the Kyrgyzstan and Tajikistan adventure was successfully completed, Matt became an ambassador for Olympus.

Late last year Matt was given the opportunity to use the OM SYSTEM OM-1 on a nine-day shoot for an upcoming Tourism Hawaii campaign. The scope was ambitious, with Matt and his two-person team being challenged to cover everything from a night dive with Manta rays to tropical landscapes, lifestyle pictures and even food photography in a busy restaurant.

‘For most of the lifestyle and food kind of things I always shoot with the 17mm f/1.2 prime and the 45mm f/1.2 prime,’ Matt said. ‘We weren't going to have much time. They’d be plating this food up in 10 minutes, and the videographers had to get the same shots as well, because they're not going to redo everything. So I knew that I had to shoot with two bodies. The primes are by far my favourite thing to shoot with because they are just so fast. The autofocus is so snappy and the eye-autofocus was perfect for following the chef as he was running around.

'The night dive with the Manta rays was probably one of the most challenging shoots I've done,' Matt said, adding 'we were documenting a cultural practice and we were in a traditional outrigger run by a local family.'

They paddled out at dusk and then once it got dark, powerful lights installed on the hull of the outrigger were switched on. 'This attracts plankton, which then attracts the Mantas,' Matt explained.

The contrast range between the inky black background and the dazzling lights from the outrigger made for an exceptionally difficult shooting challenge. Matt, who is a trained diver, had to capture the constantly moving rays with their photogenic white underbellies while coping with the extreme contrast range. 'Luckily I've set up all of my OM SYSTEM cameras to show highlight and shadow exposure warnings when these are either crushed or blown out. That's key because I am able to see on the LCD if something's blown out or under exposed beyond recovery.'

Working in difficult environments is a fact of life for Matt and few environments are more brutal than Antarctica. 'Even if I wasn't an OM SYSTEM user, for shooting in the polar regions this system is the best possible toolkit you could ever want,' Matt says, adding 'the weather sealing is so good that sometimes I've showered with my cameras to clean them. Being out on the zodiacs there's constant seaspray and they just keep working.'

As anyone who's been on one knows, a loaded zodiac doesn't offer much personal space, so for a working professional photographer, the compact OM SYSTEM cameras and lenses offer maximum flexibility.

In Antarctica Matt used an OM-D E-M1 Mark III and an OM-D E-M1X. The lightweight kit allowed him to carry a focal range from 7mm through to 1200mm (35mm equivalent) on the two bodies. On one body, he either had the M.Zuiko 7-14mm f/2.8 PRO or the M.Zuiko 12-100mm f/4 PRO IS to cover the passenger/lifestyle situations; on the second, he had the M.Zuiko 300mm f/4 PRO IS with the 2x teleconverter to capture distant wildlife.

The entire kit, along with the M.Zuiko 17mm f/1.2 PRO, could easily fit within his zodiac carry-on limit. 'I can move fast,' Matt said, 'and I don't have to worry at all about any of the equipment.'

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Optimise your exposure settings

HOW TO SET YOUR CAMERA'S EXPOSURE CONTROLS TO ENSURE YOUR IMAGES ARE CORRECTLY EXPOSED.

Margaret Brown

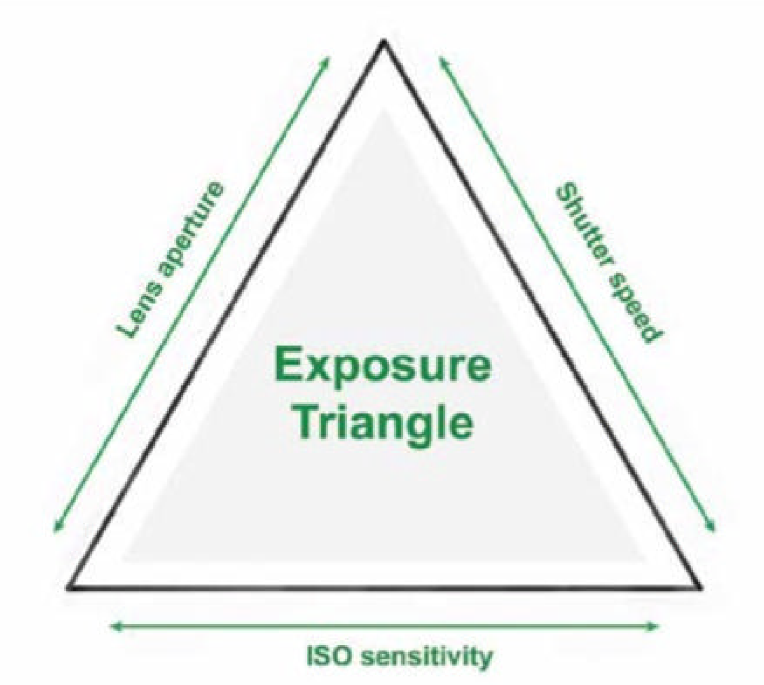
Correct exposures rely on three inter-related parameters: aperture, shutter speed and ISO sensitivity. Change one parameter and its influence will affect at least one of the others. This relationship is often depicted in an 'Exposure Triangle' graphic, which is shown on this page.

Lens aperture

The aperture of a lens controls how light passes through to the sensor that collects the signal. Unlike your eyes, where the iris diameter adjusts automatically in response to changes in ambient lighting, lens apertures must be adjusted, either by the camera when one of the auto-exposure modes are selected or by the photographer in manual exposure mode.

Aperture settings are specified in f-stops, which are expressed as fractions that indicate the ratio of the focal length setting to the effective diameter of the opening in the iris diaphragm. Wide aperture settings (which are somewhat counter-intuitively denoted by small numbers) let in a lot of light, while small apertures allow only a little.

A typical one-stop aperture sequence runs from wide to small as follows: f/2.0, f/2.8, f/4.0, f/5.6, f/8, f11, f/16, f/22. In use, when you change from f/2.8 to f/2, one stop more light reaches the sensor. Closing down from, say, f/4 to f/8 reduces the light by two stops so only a quarter of the light admitted at f/4 can enter the camera for a given unit of time.



This graphic depicts the intimate relationships between the three key elements of exposure control: lens aperture, shutter speed and ISO sensitivity. Adjustments to any of these parameters will change the overall exposure.

Each lens has a 'sweet spot' where it produces its highest resolution, usually one or two f-stops down from the maximum aperture. There is also a point where diffraction begins to produce softening of the image, usually between about f/8 and f/11.

Lens aperture settings can also be used to control depth of field (see box). Wide aperture settings capture a shallow depth of field in which only a narrow plane is sharply imaged, leaving areas in front of the plane and behind it blurred. This effect is useful for blurring out distracting backgrounds and directing the viewer's eyes to important areas, such as subjects' eyes in portraiture, players on the sports field or wildlife among vegetation.

Stopping the lens down to smaller apertures than f/8 can create acceptable sharpness from the nearby foreground to the distant horizon. This strategy is popular with landscape and architectural photographers, although diffraction may produce obvious softening at apertures smaller than f/16.

Lenses with wide maximum apertures (typically f/1.2 to f/2.8) are often called 'fast' lenses because they can support fast shutter speeds. Maximum apertures of f/4 or smaller are often considered relatively 'slow'. Constant zoom lenses retain the same maximum aperture throughout all focal length settings.

The maximum apertures of variable zoom lenses change as the lens is zoomed in. A typical example is an f/4.5-6.3 lens in which the maximum aperture closes down in 1/3 stop increments as it is zoomed in from f/4.5 at the 50mm focal length to f/5 at around 70mm, then f/5.6 at around 100mm and ending up at f/6.3 for the rest of the zoom range. At longer focal lengths, it can still be easy to separate subjects from blurred foregrounds or backgrounds with this lens, as shown in the image on the opposite page.

Depth of field and sharpness

While a camera's lens can only focus on one object distance at a time, a range of distances within the scene can appear acceptably sharp in a photograph. This range is known as the depth of field. Assessments are invariably subjective since different people can perceive sharpness differently.

Although the internet abounds with depth of field calculators, few photographers actually need them. You only need such precision for macro photography where the plane of focus is extremely shallow. At greater camera-to-subject distances, sharpness falls off gradually towards the borders of the zone of acceptable sharpness until you can't discern what is and isn't sharp enough.

The actual depth of field in an image varies with the aperture setting and distance to the subject. It's also influenced by the size of the camera's sensor.

The greatest depth of field occurs with small image sensors, small apertures and when the lens is focused on objects several metres from the camera. The narrowest depth of field occurs with macro and close-up photography, particularly with medium format sensors.

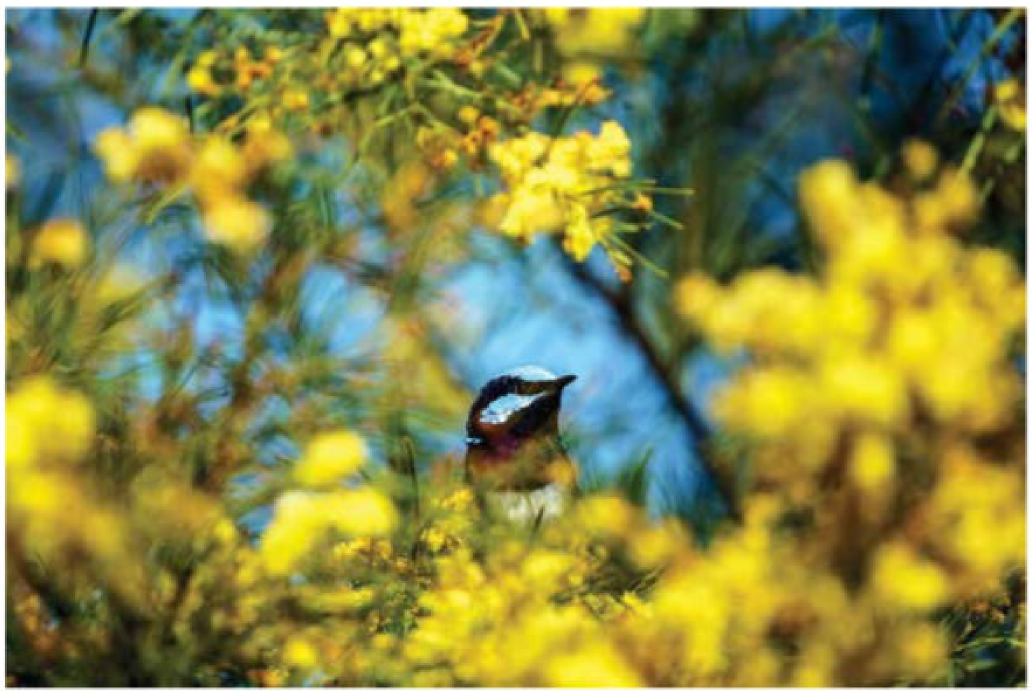
We often hold perceptions of sharpness that cause us to draw particular conclusions. Crisp detail indicates the subject is close to the viewer, while slight fuzziness implies it is far away.

This macro shot demonstrates how shallow the plane of focus can be at 1:1 magnification. (60mm focal length, ISO 200, 1/250 second at f/5.)

Sharpness can also vary with different subjects, as do our expectations of what should appear sharp in a photograph. Images might look quite sharp when viewed from several metres away yet have relatively low resolution when viewed close-up.

The actual depth of field in an image varies with the aperture setting and distance to the subject.

A close-up shot taken with a 40mm lens at its maximum aperture of f/2.8 shows how wide aperture settings capture a very shallow depth of field. (ISO 200, 1/200 second exposure.)



Combining a long focal length with the widest available aperture setting and spot autofocusing enabled the sharp capture of this tiny bush bird within dense foliage. (400mm focal length, ISO 125, 1/500 second at f/6.3.)

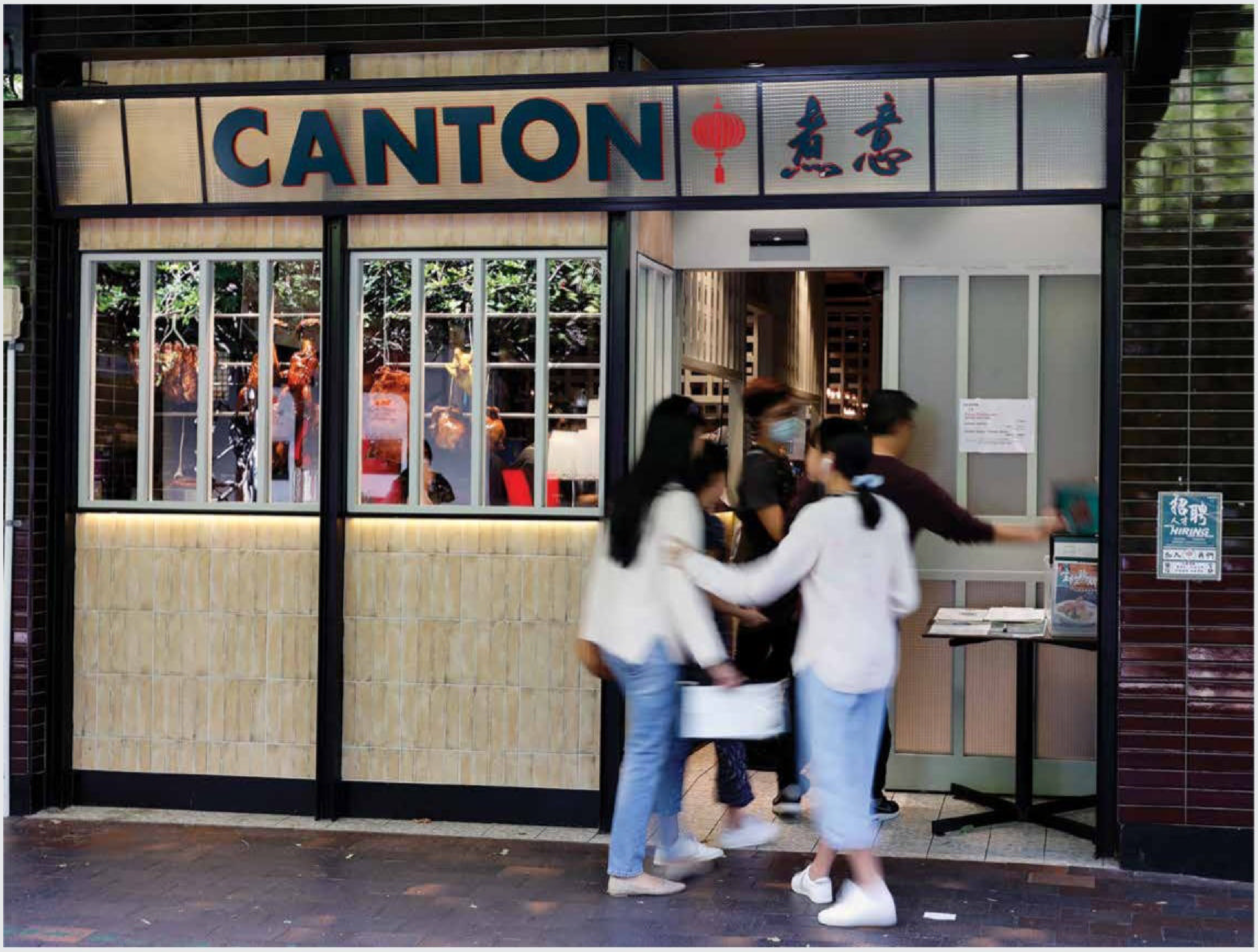
The degree of shake correction always depends on your shooting techniques

Stabilisation

Stabilisation, whether it be in the camera or in the lens or in both (where they can work together), can make significant differences in the shutter speeds for hand-held shooting. Some systems claim up to six stops of shake correction, which would allow you to use shutter speeds as slow as 1/30 second when you would otherwise require at least 1/500 second (an actual difference of five f-stops).

The degree of shake correction always depends on your shooting techniques – particularly how steady you can hold the camera while pressing the shutter button. Ambient conditions, such as activities in your vicinity, light levels and subject contrast can also play a role.

Note that stabilisation can only compensate for camera shake. It can't fix poor focus positioning or subject motion within the scene. Always learn the limits of your equipment's stabilisation systems so you know the slowest shutter speeds you can use.



Built-in stabilisation enabled the use of a shutter speed of 1/8 second for this hand-held shot taken with a 50mm focal length at f/7.1 using ISO 100 sensitivity. Note the blurring due to subject movement, while the remainder of the scene remains sharp.

Shutter speed

Shutter speed defines how long the shutter remains open and this also controls how much light reaches the sensor in 'a given unit of time'. Typical camera settings range between very fast shutter speeds of 1/4000 second or higher through to long exposures of 30 or 60 seconds.

Fast shutter speeds are useful for 'freezing' subject motion because the subject can't actually move very far in the fraction of a second while the shutter remains open. This is why fast shutter speeds are popular with sports and action photographers.

When slow shutter speeds are used, the subject may move while the shutter remains open, causing it to be blurred. This blurring can be used creatively since most people associate motion blurring with subject movement.

For recording video shutter speed settings are important if you want the motion to appear natural. A rule of thumb states the shutter speed should be set to double the frame rate; so if you're recording at 25 fps you need a minimum shutter speed of 1/50 second, while a frame rate of 50p (50 fps) requires a minimum of 1/100 seconds.

For slow-motion videos, the recommended shutter speed can be one third of the frame rate; e.g. 1/30 second for a frame rate of 100 fps. Videographers – and in some cases, stills photographers – may require a neutral density (ND) filter to reduce the amount of light entering the camera, especially when using wide apertures in bright conditions for depth of field control.

ISO sensitivity

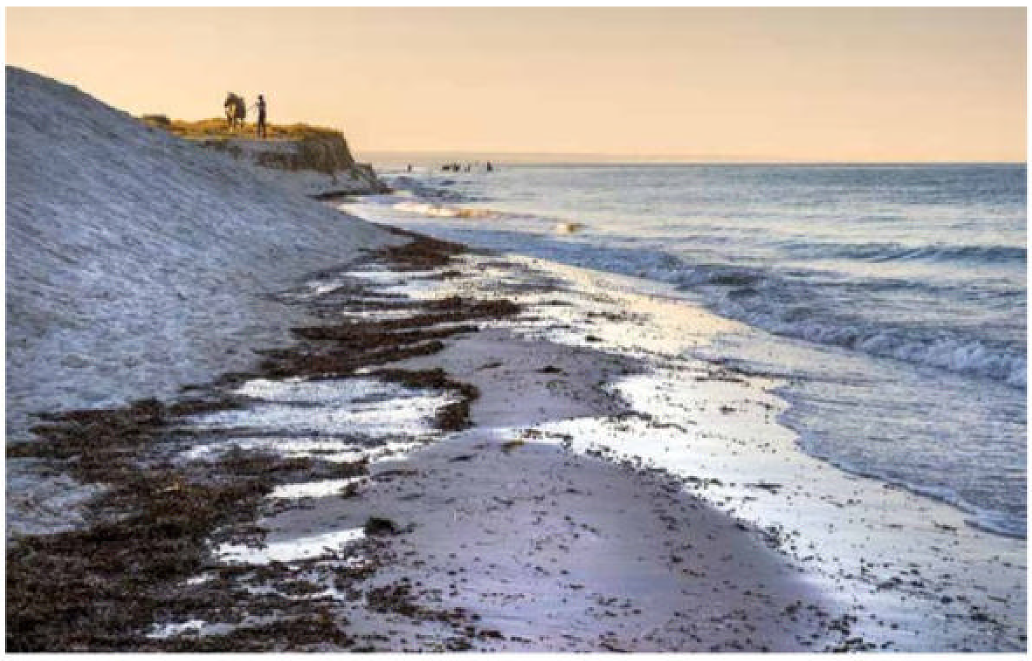
ISO sensitivity is different from aperture and shutter speed settings because it adjusts the sensor's sensitivity to light, usually by amplifying the digital signal (which also increases image noise). Higher ISO values let you operate the camera with less light for a given aperture/shutter speed setting.

Noise becomes visible as granularity in the pixel structure or through a reduction in the range and intensity of the colours recorded. Your image may also become 'softer' (blurred) as ISO values are increased due to in-camera noise-reduction processing.

Each camera has a 'native' ISO value (or small spread of settings) where image noise is as low as possible for that particular sensor. In most cases this will be between ISO 100 and ISO 200. This is where the sensor performs best so most cameras default to that value in the Auto ISO mode wherever possible.

An ultra-fast shutter speed of 1/8000 second combined with a wide lens aperture of f/3.5 with a 200mm telephoto lens to 'freeze' this racing vehicle. This combination required an ISO sensitivity of 800 to capture the shot.

Super-telephoto lenses are often relatively slow so photographers must rely on ISO adjustments when shooting with the camera hand-held. Stabilisation in the camera and lens combine to enable an exposure of 1/320 second at f/5.6 with an ISO 800 setting for this exposure taken with a 600mm focal length. The slight softening of the image is probably due to high ISO noise.



This image, captured with a short telephoto focal length of 80mm, an aperture of f/8, 1/200 second shutter speed and ISO 100 sensitivity, demonstrates that perceived depth in an image can be created by factors other than sharpness – in this case, leading lines in the shot composition.

Stopping the lens down rendered all planes in this scene – from near to far – acceptably sharp in this image. (28mm focal length, ISO 200, 1/125 second at f/8.)

Users can normally set the camera's maximum and minimum ISO settings for the Auto ISO mode – and sometimes also the slowest shutter speed setting. This lets you make sure you're able to obtain images with the lowest possible noise levels at shutter speeds where you're confident you can operate the camera.

Putting it all together

Successful images come from balancing these settings by answering the following questions with respect to your creative objective for the image:

1. Do you want to isolate part of the scene – or record with the greatest depth of field possible? The answer will tell you whether to open up or close down the aperture setting.
2. Do you want to freeze or blur an action? The answer to this question will tell you whether a fast shutter speed will be necessary.

Having answered both questions, the final question is: what's the slowest shutter speed you can use when shooting with the camera hand-held? This will tell you if you need to mount the camera on a tripod.

Wide angle lenses are less susceptible to camera shake than standard or telephoto lenses, allowing you to use slower shutter speeds. Setting the maximum sensitivity to ISO 1600 and stopping the 16mm lens down to f/8 enabled this shot to be taken with the camera hand-held at 1/6 second and the default ISO setting of 200.

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Understanding video standards

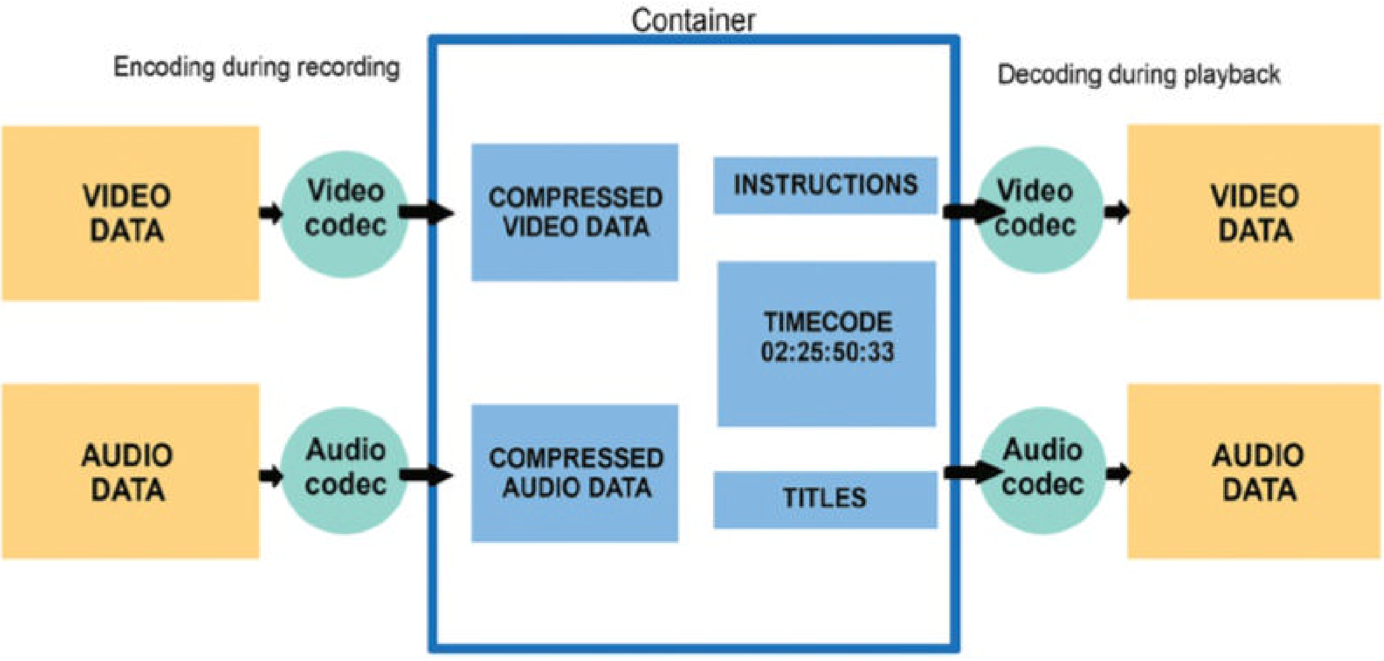
A GUIDE TO VIDEO STANDARDS AND WHAT THEY MEAN TO ANYONE WHO WANTS TO RECORD MOVIES FOR SHARING AND SAVING.

Margaret Brown

If you're venturing into video, you should understand how video recordings are created and viewed and the terminology used for describing video. Over time, changes in technology have led to some confusing terminology which is often reflected in cameras' menus.

Video codecs

Each video recording must stipulate how the video and audio signals have been combined, using a 'codec' (**co**der/**dec**oder) that also specifies how to play the recording back. The encoded data is held within a digital container, as shown in the diagram right.



This diagram shows how video and audio data are encoded in a movie file. Separate codecs are used to encode and decode the video and audio data, while the container holds it all together in a single file, along with instructions on how the file is handled as well as camera and exposure details plus timecoding and any titles that are added.

Hundreds of audio and video codecs have been created for different uses. Some are compatible across many hardware and software platforms, while others are specific to professional equipment.

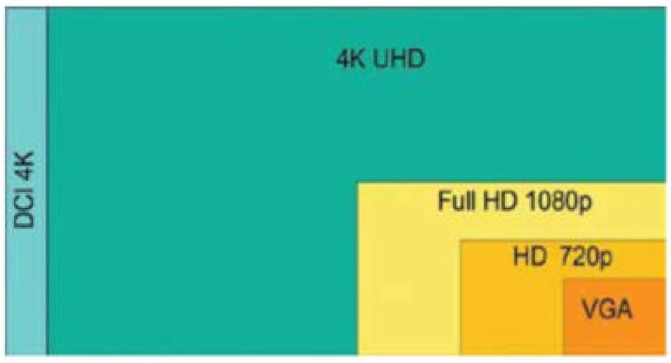
The most popular consumer codecs are MPEG-4 with the MP4 and MOV containers and Sony's proprietary XAVC and XAVC-S codecs. Apple's ProRes series of codecs are popular in professional and semi-professional equipment, as is CinemaDNG, which was developed initially by Adobe as an open (non-proprietary) format for recording raw video footage for feature film work.

Resolution

Your camera's menu provides a choice of resolution and frame rate settings, often using shorthand that identifies the **horizontal resolution**, **frame rate** and whether the frame has been **progressively** scanned or **interlaced.** Unfortunately, different shorthand terms for specifying these parameters can lead to confusion.

Normally 4K video means a horizontal resolution of approximately 4,000 pixels for each frame in a movie clip. This figure is approximate because there are actually two main 4K resolution standards.

The most common format is UHD (Ultra High Definition) with 3840 x 2160 pixels and the



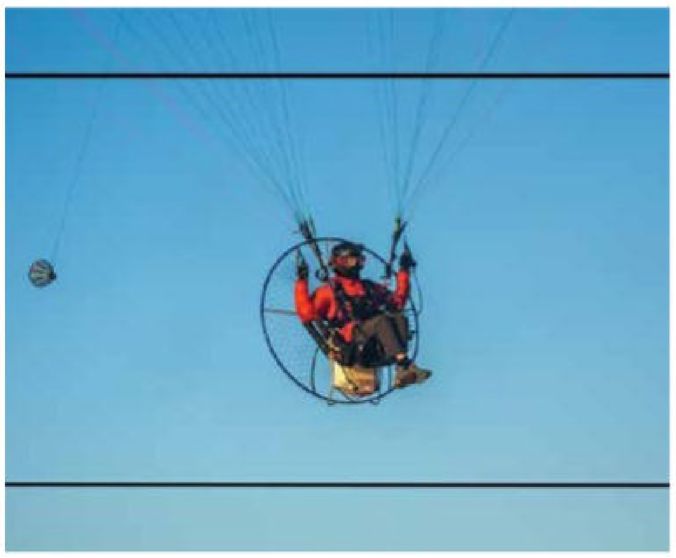
This diagram shows the resolutions for video frames from the early VGA format through to both 4K resolution standards. The HD and VGA formats are seldom offered in recently-released cameras, although most include Full HD as well as 4K. Note the use of vertical resolutions for identifying the different frame sizes for lower resolutions.

16:9 aspect ratio of most TV sets. 'Cinema' 4K (C4K) with a resolution of 4096 x 2160 pixels and an aspect ratio of 256:135 (roughly 17:9) has been developed for digital cinema production. It is more common in professional-standard cameras.

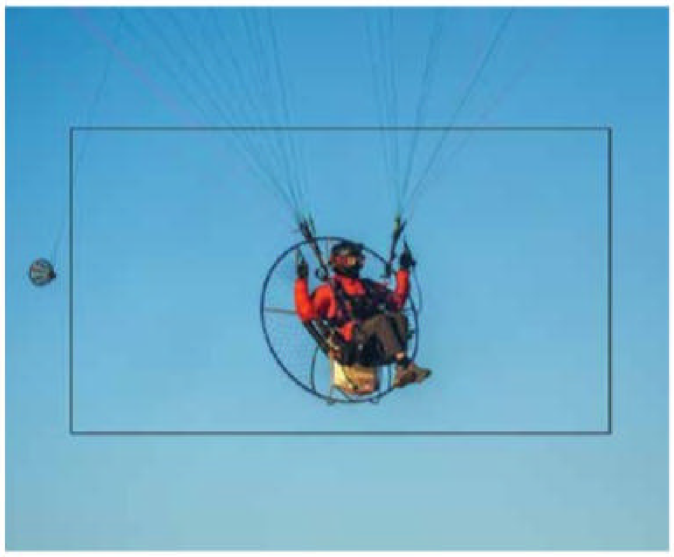
With lower resolutions, it's common to use the vertical resolution, mainly because it relates to the number of scans (see box on this page) used to create the frame. Full HD (1920 x 1080 pixel) video is commonly called '1080p', with the 'p' indicating it was recorded with progressive scanning.

Frame cropping

Because the sensor in your camera has a different aspect ratio from a widescreen TV set, most cameras automatically crop the frame to 16:9 widescreen format before recording any video. Ideally, the cropping should utilise the entire width of the frame, as shown in the illustration on this page.



The sensor's resolution will be optimised when the frame is cropped to utilise the full width of the frame, as shown in this illustration. Only the pixels above and below the black lines will be discarded.



In this example, the camera sensor's resolution is 5184 x 3888 pixels. To record video with 4K (3840 x 2160 pixels) resolution, the frame is cropped so that only the area within the black rectangle is recorded. This has the effect of 'zooming in' on the scene but all pixels outside of the rectangle are discarded.

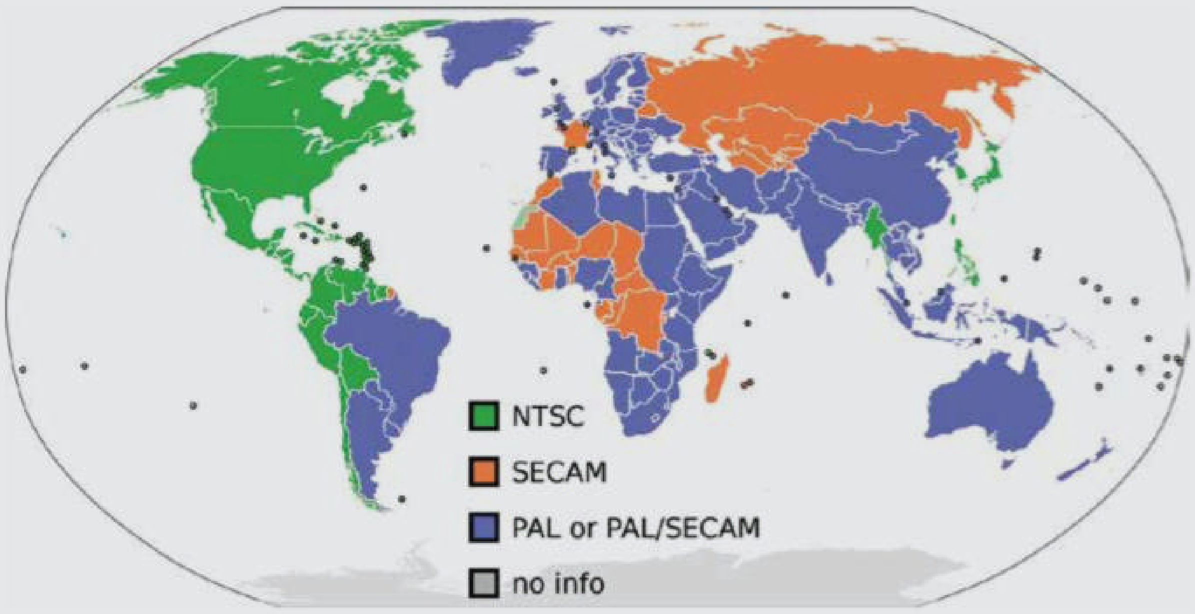
International standards

Depending on where you buy it, your camera will be set up for one of two main video format standards – PAL or NTSC. These are based on the mains frequencies in different parts of the world and affect the camera settings you use for recording movies. They also create an immediate division in TV and video frame rates.

There are two mains power frequencies worldwide: 50Hz (cycles/second) and 60Hz. Most compatibility problems between TV standards across the world stem from these differences. If you're having problems viewing your movies on TV you should check whether you're using the correct standard.

Most 60Hz based countries use the NTSC (National Television Standards Committee) standard, while most 50Hz countries (including Australia) use the PAL (Phase Alternate Lines) standard. A few 50Hz countries use the alternative French-designed system known as SECAM (Sequential Couleur Avec Memoire) – but you won't see that in your camera's setup menu.

If you live in a 50 Hz country, your video frame rates will be based on multiples of 25 frames/second (fps), giving you a choice of 25, 50 or 100 fps. People living in NTSC countries will have frame rates based on approximately 30 fps (actually 29.97 fps) so you get 30, 60 and 120 fps frame rates.



This graphic shows how different TV standards are distributed worldwide. (Source: Akomor1 - Own work; derived from File:BlankMap-World6.svg.)

Scanning

Video consists of an ever-changing data stream that produces a series of horizontal lines when it's displayed on an LCD or LED screen. They are scanned horizontally from the top to the bottom of the frame and then back again to the top.

The number of frames that can be drawn each second is known as the refresh rate and it's dependent on the mains frequency of the power supply to the screen. In PAL system countries the refresh rate is 50 frames/second, while NTSC countries refresh at 60 fps.

There are two methods for video scanning: **progressive** or **interlaced.** Progressive scan systems update all the scan lines in each frame in sequence and display all the lines at once. This system is indicated by the letter 'p' after the resolution or frame rate identifier, e.g. 1080p or 4K 25p. It's faster than interlaced scanning and usually delivers better viewing quality so it's more commonly used.

Interlacing (designated by an 'i') was designed to minimise flickering and is used to minimise bandwidth requirements. The scanning lines are captured as alternating 'fields', with an odd field consisting of the odd-numbered lines and an even field (lower field) using the even-numbered lines.

By sending only half the frame at a time, less bandwidth is needed for transmitting the movies. When displayed, fast-moving subjects can be recorded with noticeable differences in the positions of the fields, creating jagged edges. **Deinterlacing** can reduce this problem by blurring the motion. But it requires extra processing and is seldom really smooth.

Problems can occur if the sensor's resolution is greater than the video resolution. Some cameras crop out a section in the centre of the frame corresponding to the selected video resolution, discarding the remaining pixels. This has the effect of 'zooming in' on the scene.

When the full frame width is used, the camera's image processor has to ***downsample*** the image data, using a technique known as 'pixel binning', which divides the signal into blocks of two pixels, horizontally and vertically. Pixel binning produces larger pixels that get more light during the exposure, thereby improving the signal-to-noise ratio. This delivers better low-light performance and videos that look better when played back.

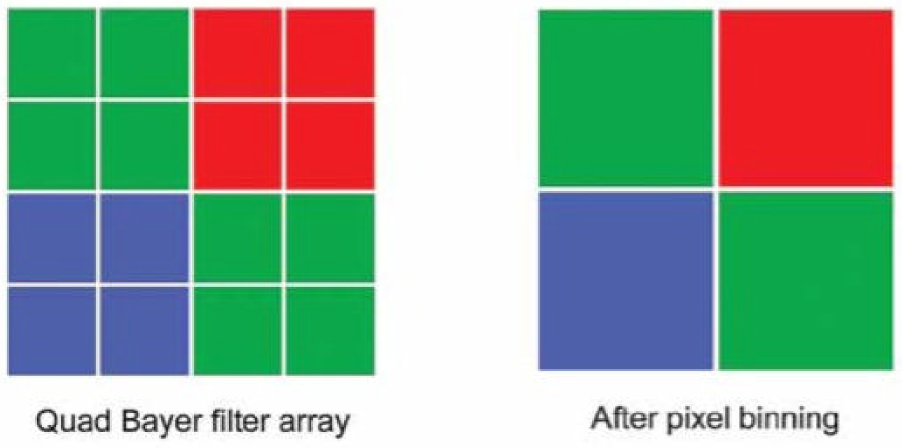
Bit rate

The term '**bit rate**' (or 'bitrate') quantifies the data flow for encoding the video and/or audio signal. It's normally measured in megabits per second (Mbps) – or gigabits per second (Gbps) for 4K and higher-resolution video. This value can help you to gauge the file size and quality of a video clip as well as how fast (and whether) it can be transferred across an internet connection.

High bit rate video clips have better quality but their files are large. They take a long time to upload or download for viewing so most are compressed to reduce the size of the file. Two systems are used:

Constant bit rate (CBR) compression compresses each frame by the same amount and is ideal for streaming video.

Variable bit rate (VBR) compression evaluates each frame to determine how much it can be compressed before quality deteriorates. Users can define maximum, minimum and target bit rates and the compression process used, making it a more efficient way to preserve the original quality.



These diagrams show how pixel binning combines the values from pixels in a 2 x 2 block to reduce the frame area for recording video.

Most editing programs include recommended bit rates for different output devices, including smartphones. Choose the one best suited to your target output device.

Managing compression

Compression can be either **lossless** (which retains all necessary information) or lossy (which discards data). Lossless compression identifies and replaces redundant patterns in the data but retains all the essential data for recovery when the file is uncompressed. The resulting files are quite large.

Lossy compression discards redundant data to create a lower-quality approximation of the video. The files are smaller but the discarded information is permanently lost. Lossy compression is generally used for video and sound where the information loss is unlikely to be noticeable by most viewers.

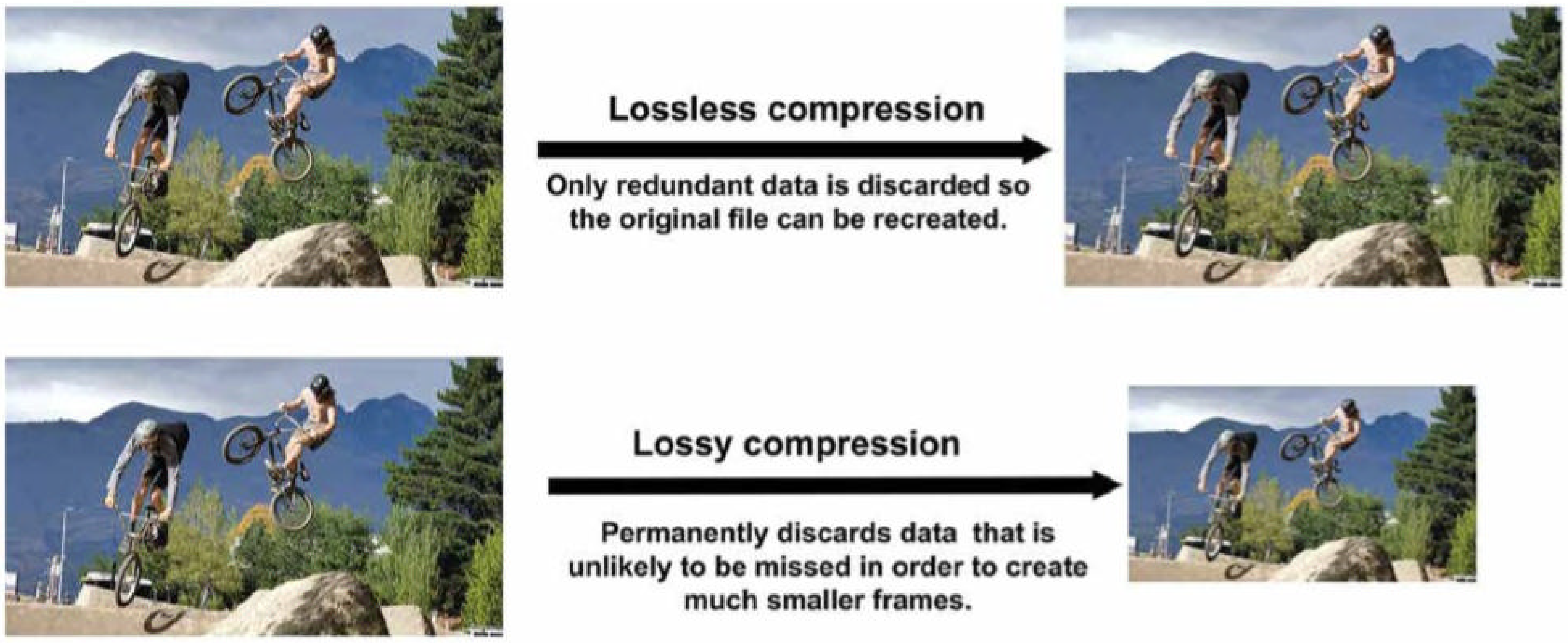
Many entry-level consumer cameras only offer lossy compression but higher-featured cameras usually provide a choice of lossy or lossless compression. Choose lossless compression when output quality must be preserved.

Bear in mind that even if you've used lossless compression for your recording, many social media sites will compress the file further. More data is lost, and the result could be noticeable. It's worth checking whether – and by how much – the websites you use compress uploaded files so you can gauge how much to compress your videos before posting them.

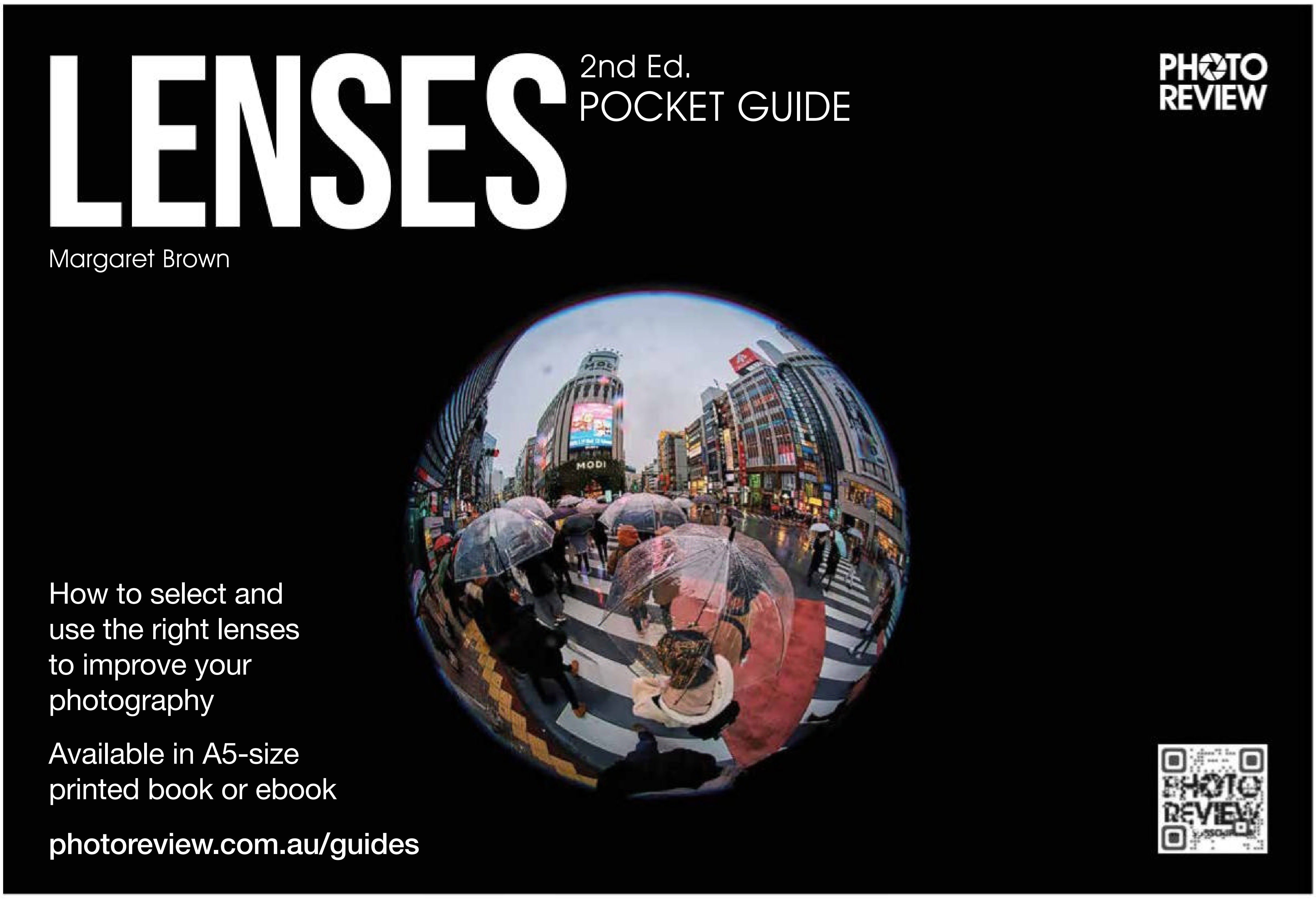
It's a different situation when you want to archive or edit footage. Saving uncompressed originals or using lossless codecs will allow you to retain as much as possible of your original recording.

If your camera offers it, we recommend using the latest compression standard, High Efficiency Video Coding (HEVC) – also known as H.265 – when recording your video. It offers about double the data compression ratio with the same level of video quality as the regular H.264 setting so you get better video quality at the same bit rate. Resolutions up to 8192 x 4320 pixels (8K UHD) are supported.

Some cameras include modes for **Proxy** recording, which sets the camera to simultaneously record a low-bit-rate 'proxy' movie while also recording a regular or slow-motion movie. Proxy recordings are ideal for sharing as they shouldn't need further compression when transferred to smartphones or uploaded to websites.


Lossless compression
Only redundant data is discarded so the original file can be recreated.
Lossy compression
Permanently discards data that is unlikely to be missed in order to create much smaller frames.

This illustration shows the differences between lossless and lossy compression.



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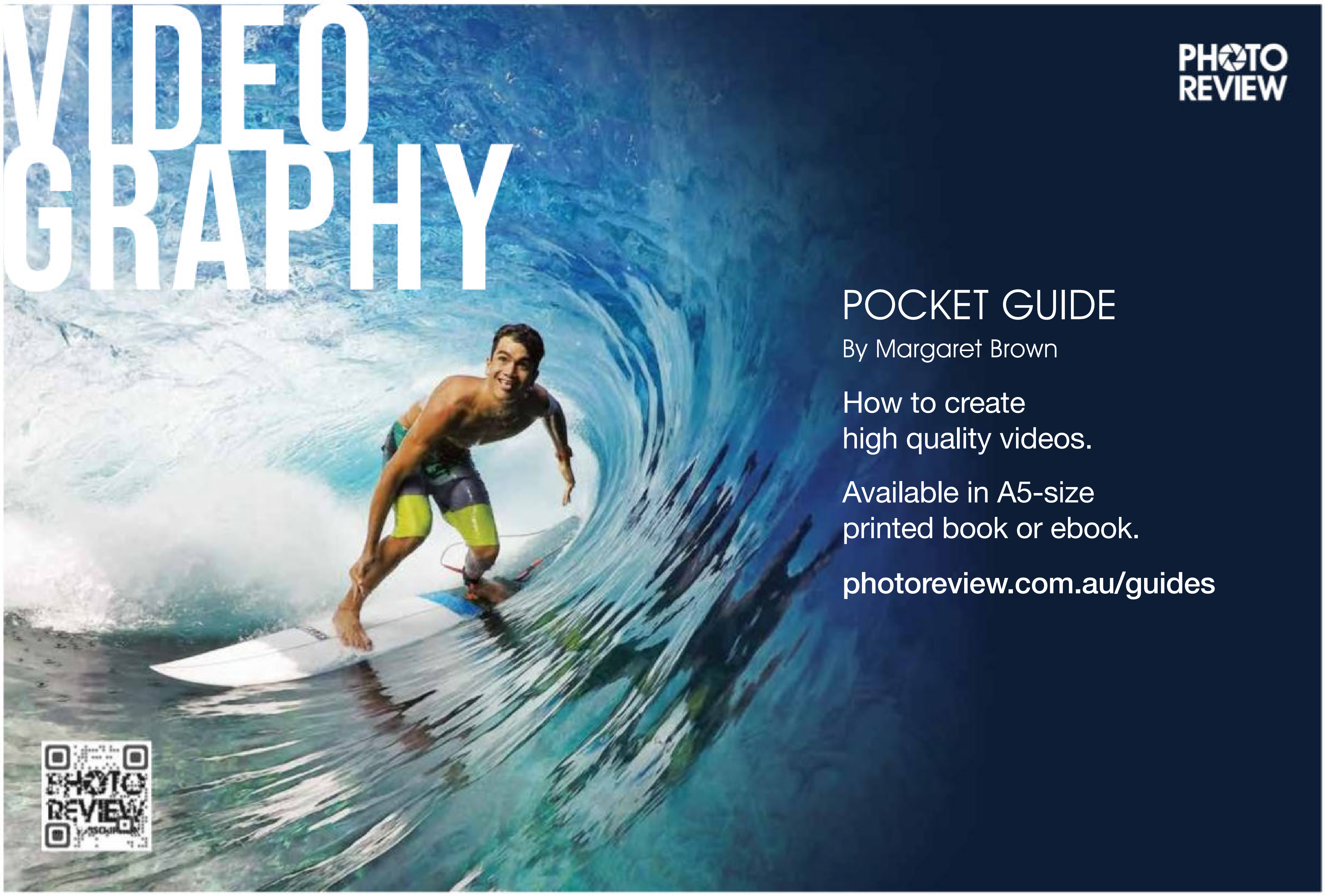

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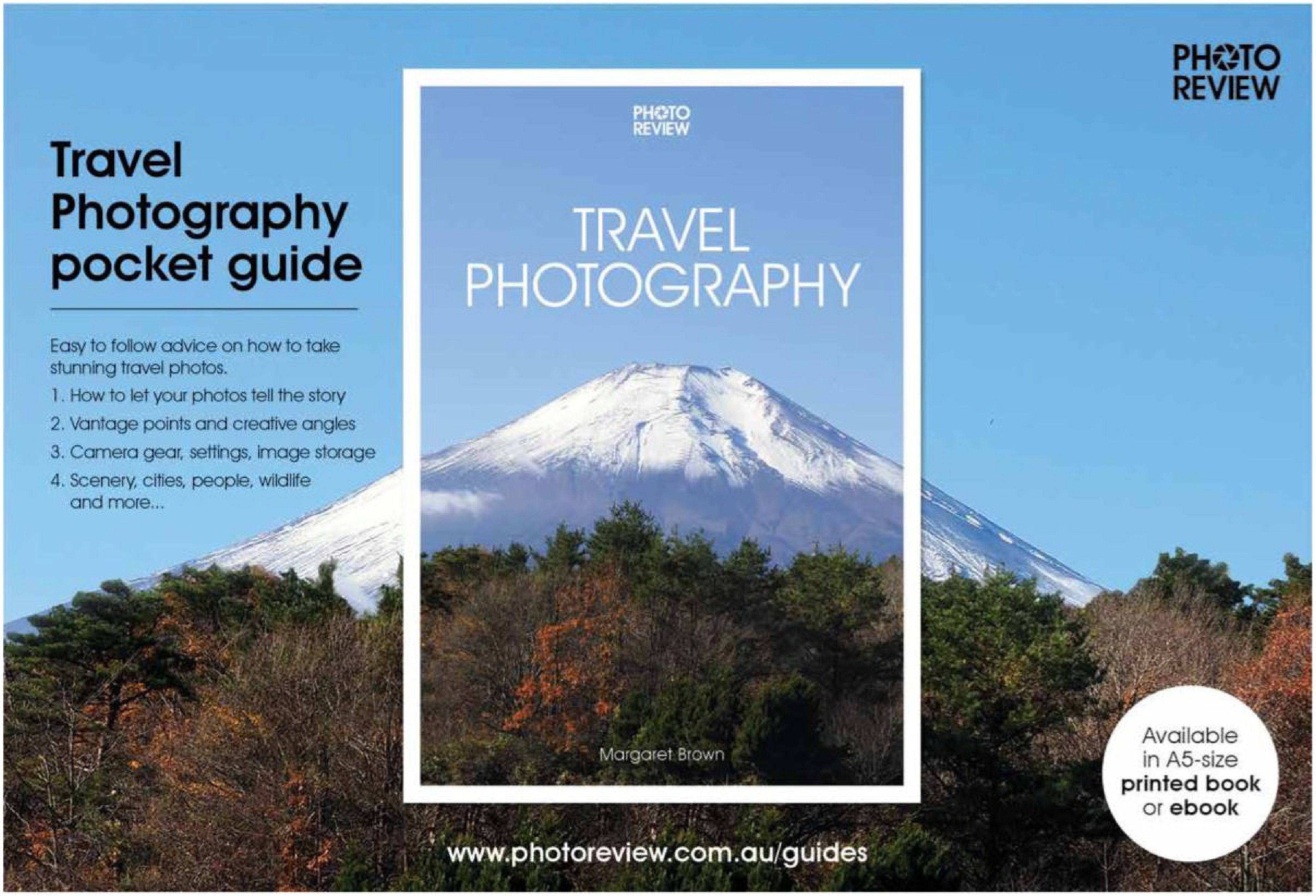

PHOTO REVIEW

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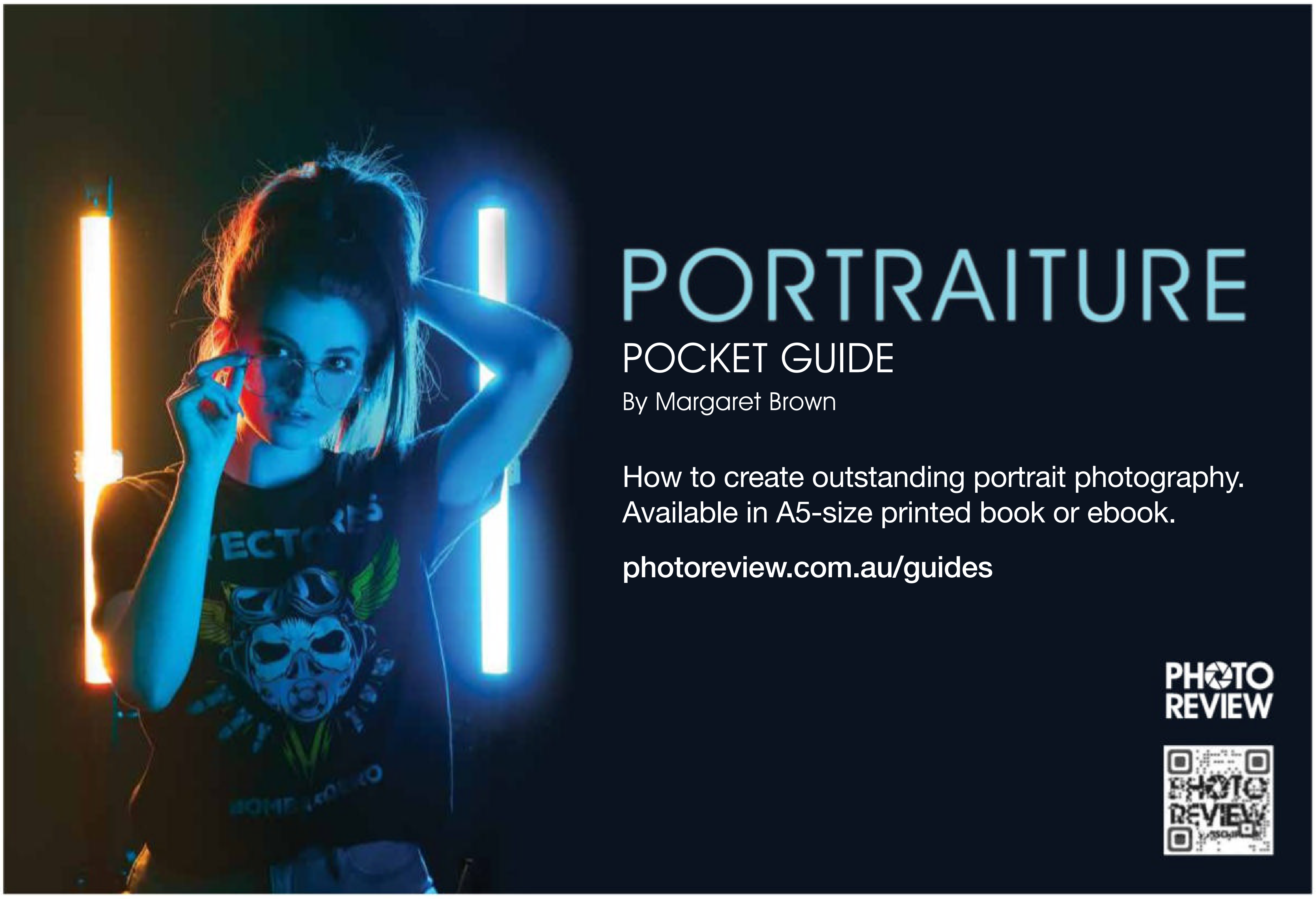

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PHOTO REVIEW

The quest for lightweight gear

HOW TO MINIMISE THE WEIGHT YOU CARRY WITHOUT COMPROMISING THE QUALITY OF YOUR IMAGES AND VIDEO CLIPS.

Margaret Brown

There comes a time in every keen photographer's life when carrying a heavy camera kit puts a brake on activities that would otherwise have been both possible and enjoyable. It's usually – but not always – associated with increasing age; you just can't carry the amount of gear you could a year or so earlier. But many people of all ages would simply rather travel light.

There are a number of ways to reduce how much you carry, all involving serious thought and some compromising. You might opt for just a smartphone, which is fine if you only view your image on screens and don't want to bother with challenging shot compositions.

Fortunately, if you want to take a 'proper' camera, you needn't burden yourself with heavy gear. There's plenty of lighter equipment available, as we've outlined below.

Pruning your kit

Let's start by eliminating the things you don't need – or can easily do without. The two pieces of equipment I've happily dispensed with on my trips over the past decade are a tripod and an accessory flashgun. If your camera (or better still, camera and lens combination) has built-in stabilisation you shouldn't need either in most situations you're likely to encounter.

Tripods are only really necessary for long exposures. Otherwise, they get in the way and many places ban them. They also add weight to your kit.

Flashguns are occasionally useful, although they're more likely to be a nuisance to you and people you photograph because they're so intrusive. Many potentially photogenic places also forbid the use of flash.

The tight light distribution from a flash can also be difficult to control outside of situations where bouncing the light off a pale-coloured ceiling or wall is possible. With the wide dynamic ranges of the sensors in today's cameras, you don't really need a flash.

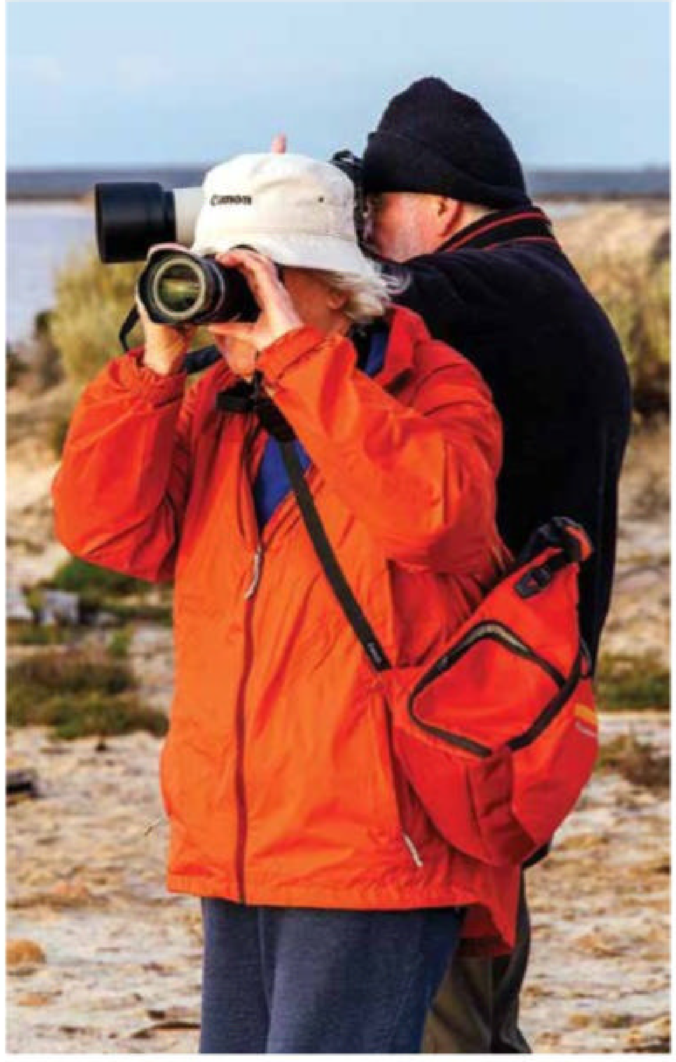
In-built stabilisation, coupled with the speed of your lens and your shooting technique will determine the light levels in which you can hand-hold the camera successfully. Most modern cameras should be able to produce noise-free images up to ISO 800, with many going higher. Shooting raw files will provide a bit more flexibility and control over the end results.

You can probably leave most filters behind, although they don't weigh much. Unless you're extremely rough with your gear, you don't need a protective filter on the lens. Nor do you need a UV filter (the camera's auto white balance will correct any colour shifts). If you're 'into' graduates and 'effects' filters it's up to you to decide whether their aesthetic effects are worth the trouble since you can replicate them when you edit your shots.

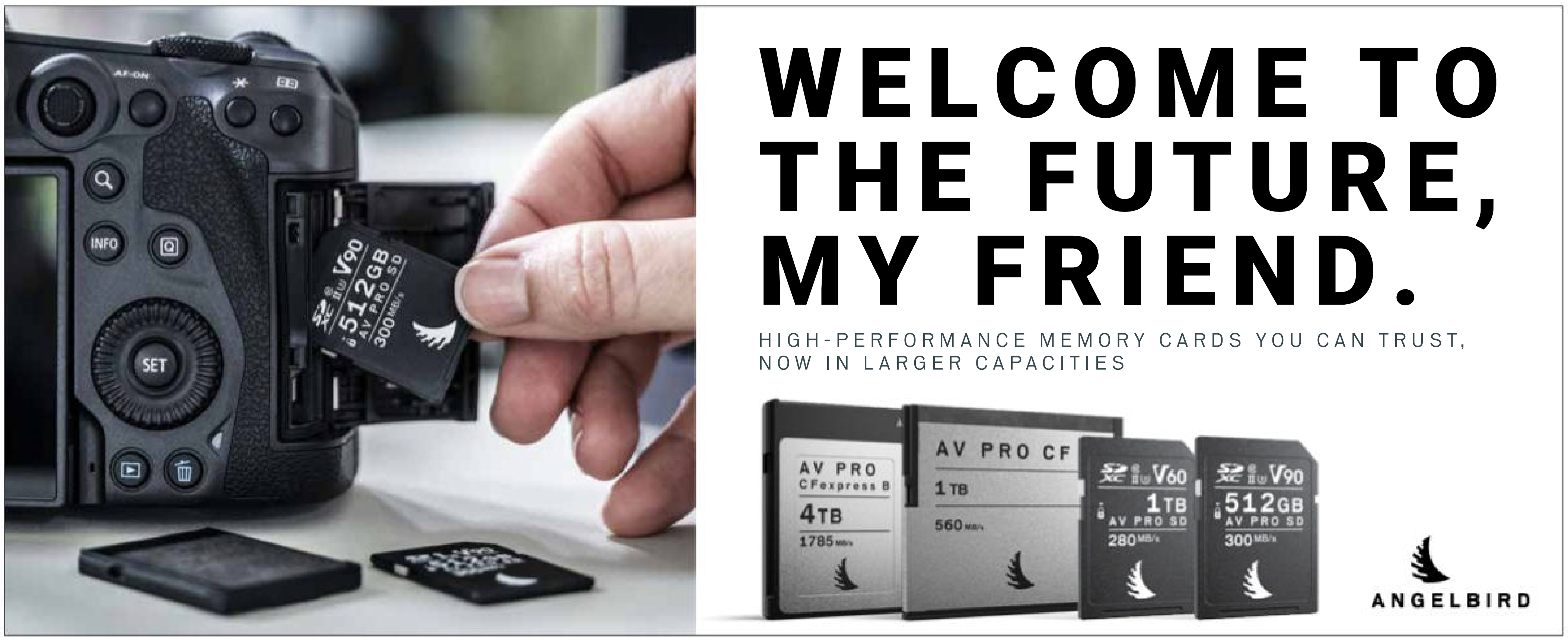
ND filters can be handy but some recently released cameras have them built in to save you the need to carry separate filters. Polarisers can be useful if you want to shoot through reflective surfaces; but they can be a liability in high-altitude areas where they tend to over-darken blue skies. And remember, all filters MUST be kept clean or they'll degrade your images much more than settling for a smaller, lower-resolution sensor.

Camera and lens combos

Outside of a smartphone the smallest cameras are compact models with built-in lenses. Pocketable point-and-shoot cameras like


A lightweight interchangeable-lens camera plus an extended-range zoom lens can fit into a compact camera bag to give you a 'take-anywhere' weight of between one and 1.5 kilograms.

Think Tank Photo's Mindshift Photocross Sling bags are built to withstand the elements and can hold a lightweight camera kit safely out of the way when you're engaged in active adventures – while providing quick access to when you need it. Available in 7.5 and 11 litre capacities, they can hold all the gear you need.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Panasonic's TZ (Travel Zoom) series are very small and light as well as convenient to pack, carry and use. Most models have extended-range zoom lenses and can record 4K video and raw format stills.

Birders and wildlife shooters could consider some of the larger compact cameras with very long zoom ranges. Canon's PowerShot SX70 HS (65x), Nikon's Coolpix P950 (83x) and P100 (125x) and Panasonic's FZ80 (60x) fit into this category.

Snapshooters who want the ultimate in weatherproofing can't go past the Olympus Tough TG-6, which is pocketable and weighs only 253 grams with battery and SD card included. This tough little camera includes sophisticated functions like focus stacking, Live Composite and HDR (high dynamic range) compositing.

Waterproof, shockproof and freezeproof, it has a fast f/2 lens with 4x optical zoom plus a 2x digital teleconverter and outstanding macro capabilities that include a 'microscope mode' that can focus on subjects up to 1 cm from the front of the lens. It can also record 4K 25p video.

Compact cameras have three main problems: their sensors are small, which means images shot at ISO settings above about 400 tend to be grainy looking or slightly soft. They can also struggle to focus in really low light and they chew through battery power.

They also have limited wide-angle capabilities, although that can be overcome (to a degree) by shooting panoramas. On the plus side, some are small enough to slip into a pocket and they won't weigh you down.

Of course, a serious photographer who wants to print their photos will probably prefer an interchangeable-lens camera and, fortunately, there's a good range to choose from. It's also possible to select a relatively small and lightweight camera-plus-lens kit that is easy to carry but produces images good enough to print at A2 size (594 x 420 mm).

A suitable travel kit could be an OM-5 camera with an M.Zuiko Digital ED 12-100mm f/4 IS PRO lens with a total weight of 975 grams with battery and SD card included. If M4/3 is too small for you, there are a few good options among the cameras with APS-C sized sensors.

Interestingly, when we asked the local distributors for 'lifestyle' shots showing their cameras with all-in-one zoom lenses, none of them had any. Head offices seem to think people are only interested in pairing compact, lightweight camera bodies with small, short-range zooms!

Travel tips

If you're travelling by plane, the weight of your carry-on kit is important. You shouldn't pack any valuables like spare bodies and lenses into your checked-in luggage where it will be at risk of being lost or impact-damaged. Most airlines restrict carry-on baggage with respect to size, weight or (commonly) both.

Carry-on baggage allowances for larger aircraft are normally set at 10-14 kg and can include a small 'overnight' bag or backpack, a handbag or small camera bag and a coat or jacket. Smaller aircraft like the Dash 8 planes that fly to Lord Howe Island have a strict 7 kg limit that covers **all** carried-on items. Check the airline's website for details before you fly.

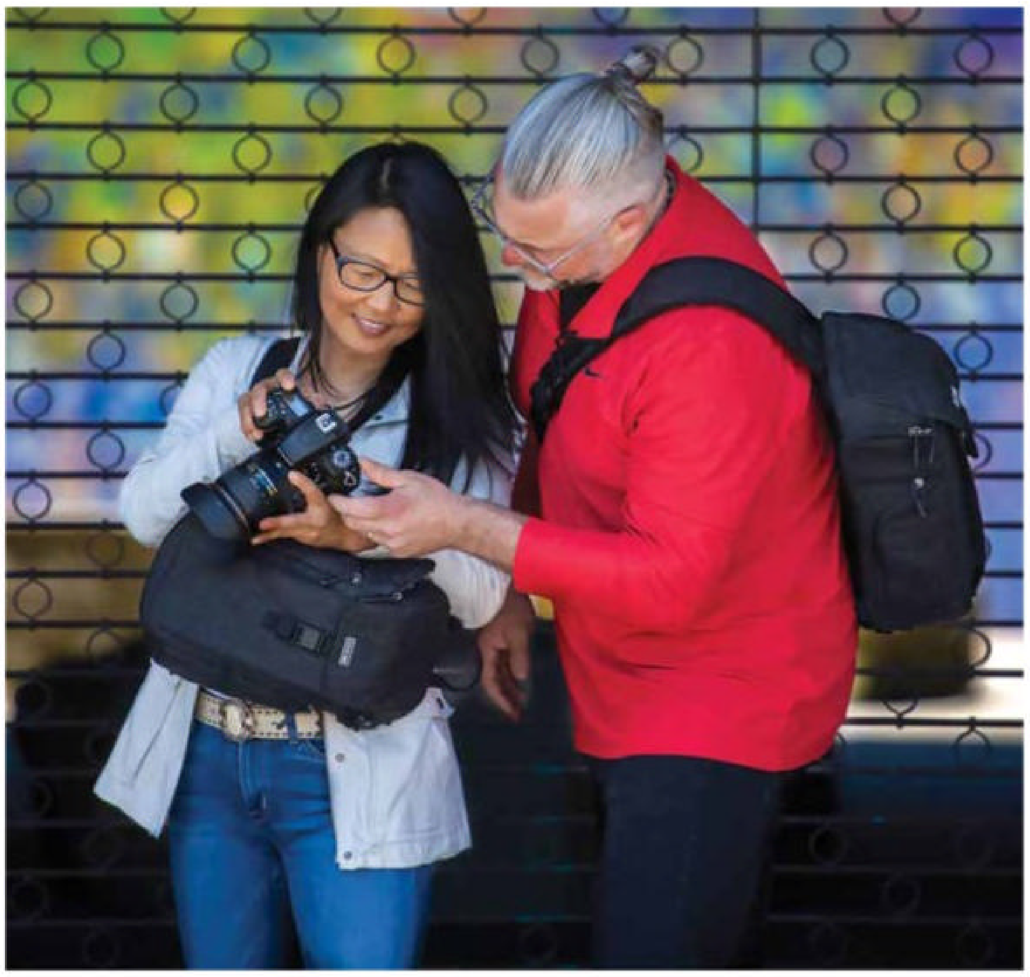
Sometimes you can get around the baggage allowance by 'wearing' your camera around your neck and/or packing small items into your jacket pockets. But don't count on it. Very small planes and helicopters have critical weight limits for takeoff and you're likely to be weighed with your kit before you're permitted to board. Check beforehand if you want to take a camera on such flights.

Laptops and tablets must always be removed for pre-boarding security checks. Some places will ask you to take everything out of your camera bag for hand checking. Be prepared; the less gear you take, the lighter your pack and the easier it will be to comply with these regulations.

Careful packing is essential, particularly if you're flying in smaller aircraft. This illustration shows how a M4/3 camera body and lens can be fitted into a small 'Mirrorless Mover' bag, along with the traveller's smartphone.

The fully waterproof Olympus Tough TG-6 is ideal for adventurous photographers because it can be taken anywhere yet provides both macro and short telephoto capabilities. It can also shoot 4K video at 25 fps.

Choosing a lightweight camera bag to pack your kit into will help you to keep overall weight down.



Shoulder bags come in a variety of sizes and colours and can be a suitable choice for city and urban shooting.

Sling type bags that are worn on the user's back but can be quickly moved to the front of the body are popular with photographers of all ages and practical for both travel and street shooting.

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Di III: For mirrorless interchangeable-lens cameras.

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Focus on the Future

The smallest interchangeable-lens cameras from the leading manufacturers weigh less than half a kilogram with battery and memory card included. The Canon EOS R10 weighs only 429 grams and if you add the RF-S 18-150mm f/3.5-6.3 IS STM lens at 310 grams you'll be carrying less than 750 grams in a feature-packed kit with 24-megapixel stills resolution, 4K video and the latest AF tracking capabilities.

Nikon's lightest non-vlogging cameras are the Z50 and Zfc, which weigh just under 500 grams. The best matching lens is the Nikkor Z DX 18-140mm f/3.5-6.3 VR, which weighs 315 grams, giving you another under one kilogram option.

While you can also choose lightweight cameras with full-frame sensors that overlap with the heavier cropped-sensor models, they will also require heavier lenses so the overall weight you will carry will probably be greater. The lightest models include Canon's entry-level EOS RP (485 grams) and Sony's Alpha 7 C (409 grams) which have effective resolutions of 26.2 megapixels and 24 megapixels, respectively.

If you're looking for minimum weight with maximum zoom coverage for a full-frame camera plus lens you can pair the EOS RP with an RF 24-240mm f/4-6.3 IS USM lens for an overall weight of 1,235 grams or the Alpha 7 C with a Sony FE 24-240mm f/3.5-6.3 OSS lens for an overall weight of 1189 grams. But both options require some compromises in operability (only one card slot and a relatively low-capacity battery).

Camera bags

Choosing a lightweight camera bag to pack your kit into will help you to keep overall weight down and there are plenty of options to consider. If you're only toting a camera with a lens attached plus spare battery, memory cards and maybe the odd filter, a 'holster' bag could give your gear the protection you want without making it heavy to carry or difficult to access.

Shoulder bags are popular with weight conscious travellers and secure and easy to access if you wear the strap diagonally across your chest. They're a good choice for city and urban use but less suitable for bushwalking. Many 'Messenger' style bags include pockets for laptops or tablets so it's a matter of choosing one that fits the gear you want to carry.

Sling bags are a good compromise between a shoulder bag and a backpack and practical if you hike or walk for longer distances. Most provide better padding and many include pull-over all-weather covers that can protect your gear if you get caught in the rain. Tripod slings and side pockets for drink bottles and accessories are common on larger bags.

However, once you start looking at larger backpacks it means you're planning to carry more gear than we'd advise for really weight-conscious travel. Although lightweight backpacks can be found, most are designed to accommodate a camera plus several lenses, a tripod and other accessories which puts them out of the scope of this article.

A compact M4/3 camera fitted with a 12-100mm f/4 lens is a good option for those who need to travel light. The camera has a full range of pro-level stills and video capabilities and both the camera body and the lens include IBIS plus IP53 weatherproofing. On the M4/3 sensor, the lens covers the 35mm equivalent focal length range of 24-200mm, which is versatile enough for most types of shots.

Panasonic's TZ series cameras are popular with everyday stills and video shooters who want a camera they can slip into a pocket. (Source: Panasonic.)

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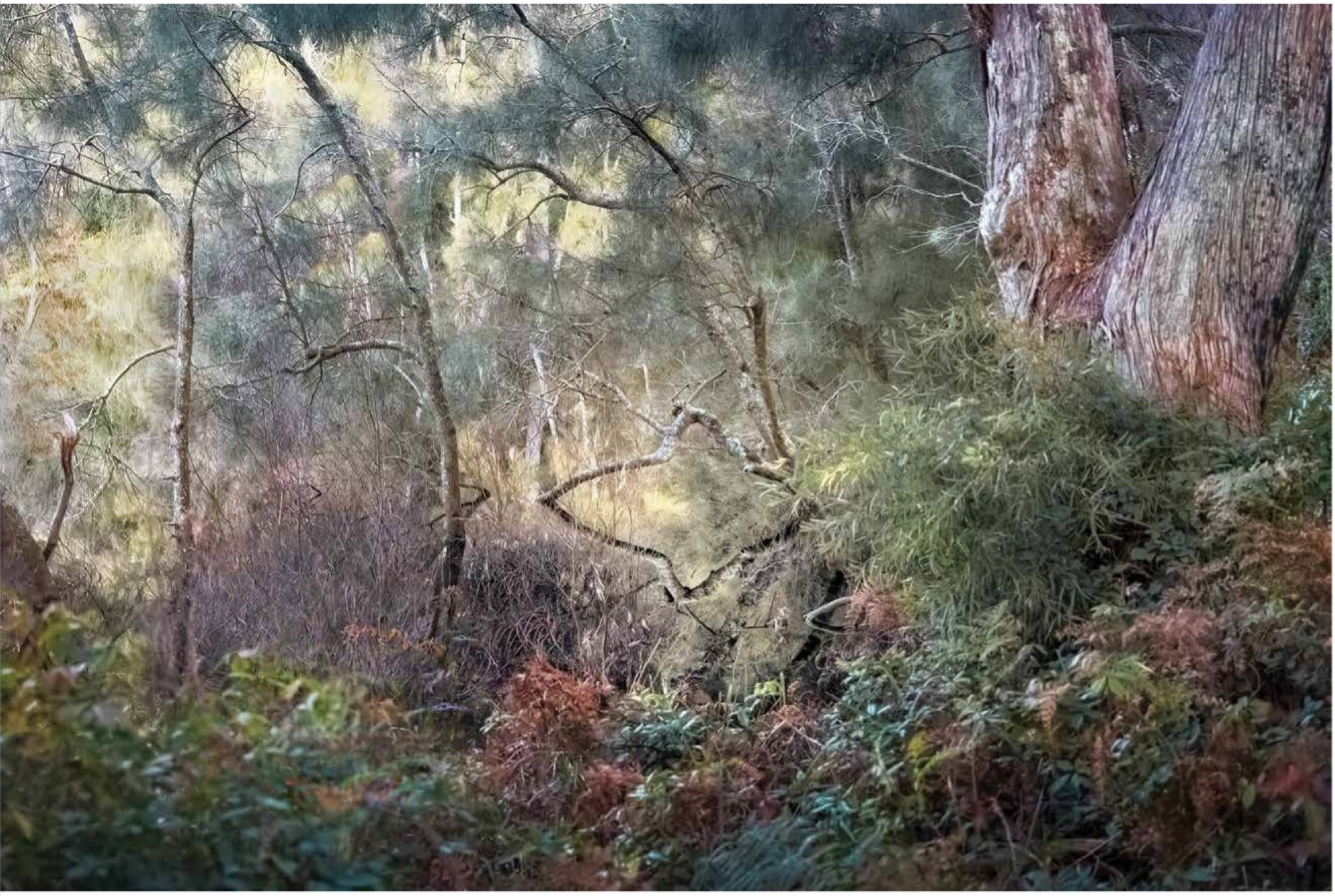
Image review



Blacks Waterhole

By Robynne Hayward

Second winner Image Review 14

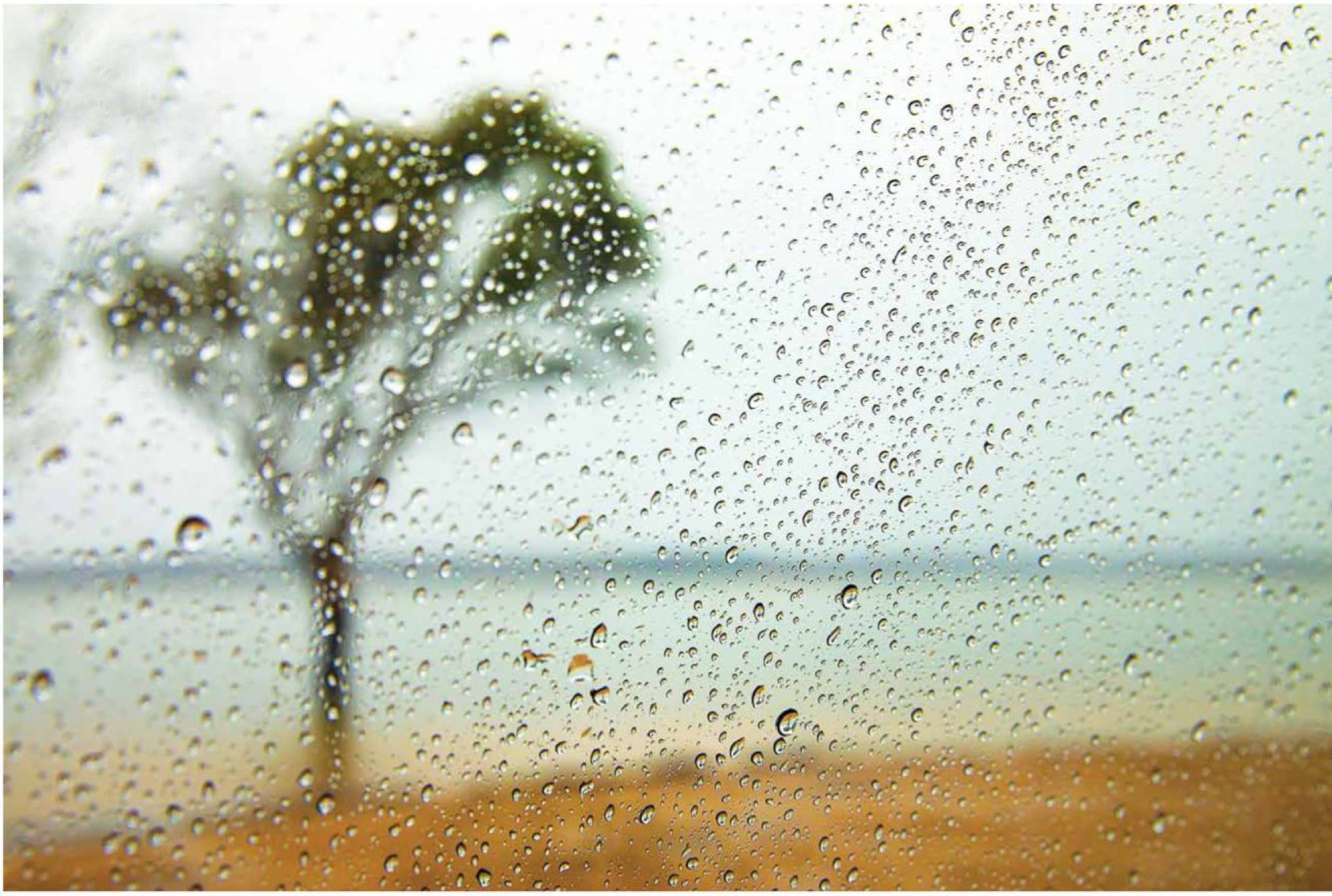
Canon R6; RF 24-105mm f/4 lens

Booderee National Park, Jervis Bay, NSW

Don’s response

Capturing the spirit of the Australian bush is not an easy task. It is so visually "noisy" and apparently chaotic, that discerning a pattern or even a point of interest is dauntingly difficult.

Photographer Robynne Hayward's composition finds a way through the problem by positioning the intriguing shape of the mirrored tree branch in the centre of her frame. Once we have that anchor point we're more likely to notice the pattern of vertical elements on either side. The welter of vegetation is no longer as overwhelming and we have a sense of place.



Glenmaggie Abstract

By Graeme O'Rourke

Canon 5D Mark IV; Tamron 35-150mm lens; f/2.8-4.0 Di VC OSD @64mm; f/9; 1/25s; ISO 1600; Hand held; No flash

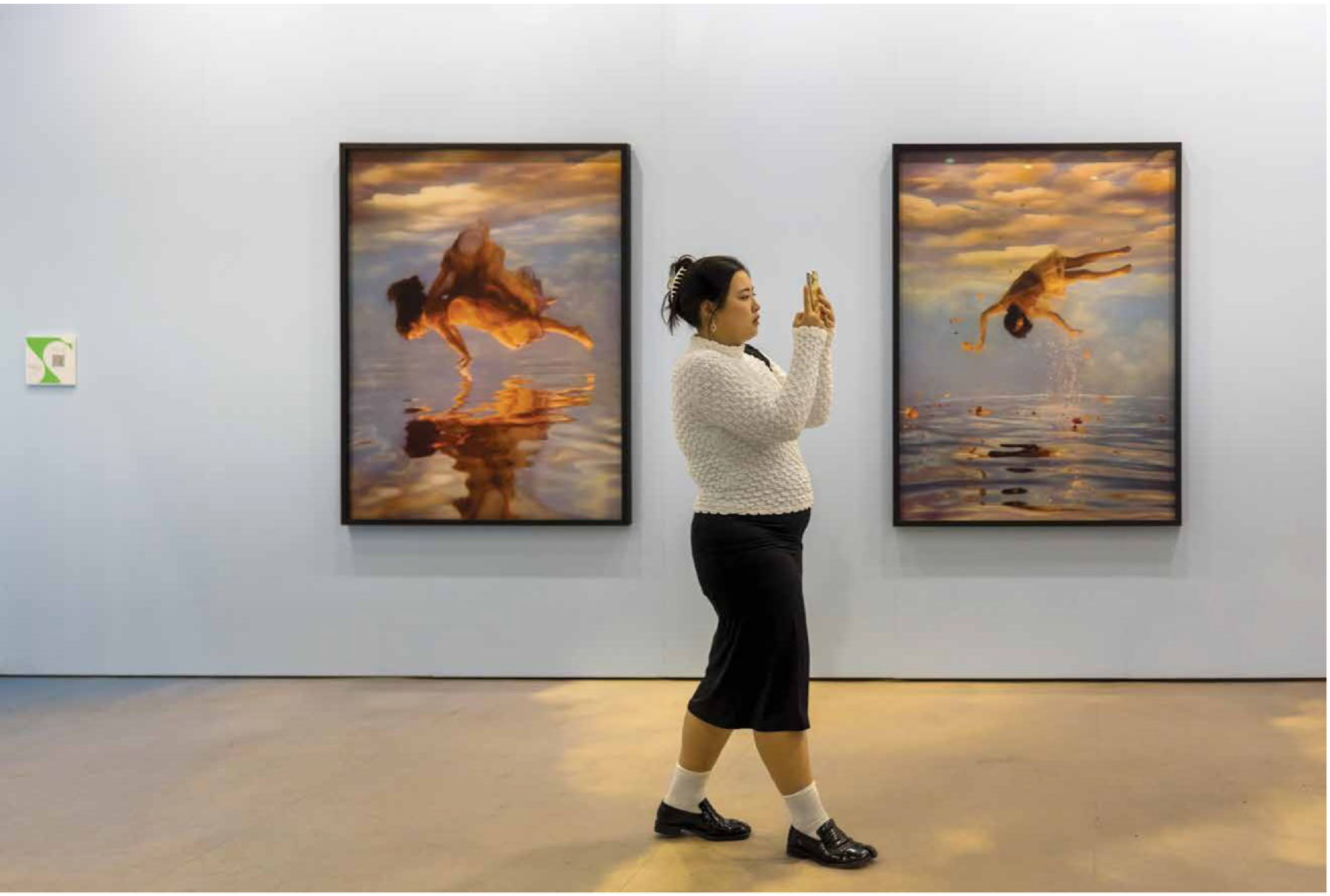
It was wet, cold and miserable at Lake Glenmaggie in Victoria when this photo was captured while sitting in the back seat of a car.

The diagonal band of sharp focus passing through the centre of the photo is where the Plane of Focus was at the time of focusing – which had been locked in by switching to Manual focus whilst being careful not to touch the manual focus ring.

I wanted the tree to be blurred as much as possible whilst having only the central area of the rain drops as sharp as possible.

Don’s response

Photographer Graeme O'Rourke saw a picture where most people wouldn’t. And that’s in large part due to his ability to think photographically. By consciously managing the plane of focus, he was able to keep a precisely delineated band in which the water droplets were perfectly sharp (indeed, as Graeme observed, if you zoom in on the droplets, you can clearly see the tree’s inverted image). The result is a moody, memory-like evocation of a moment in time.



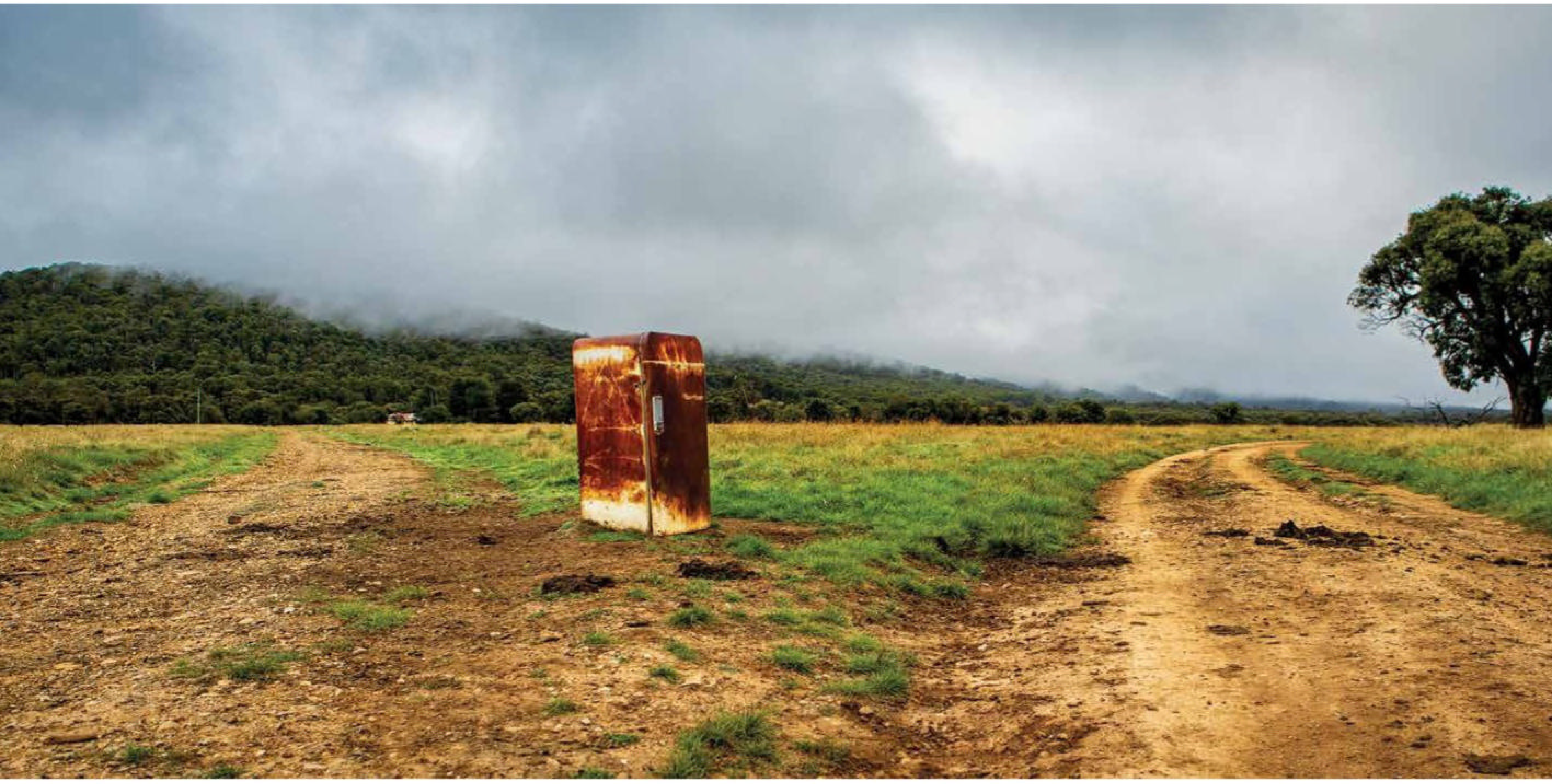
Sydney Contemporary 2022 exhibition

By Robynne Hayward

Carriageworks, Redfern NSW.

Don's response

Photographer Robynne Hayward's off the cuff snapshot of a fellow gallery goer (presumably taking a picture herself) made me chuckle. The symmetry of the subject and the photographs is so perfect that I wondered why Robynne opted for a landscape rather than a square aspect ratio. Try covering the left side of the image and see if you agree that a square frame would intensify the final result.



Keeping Cool

By Gavin Kellett

Canon 5D Mark III; Tamron SP 24-70 f/2.8 lens; 24mm; 1/160s; f/5.6; ISO 400

This refrigerator is not what we were expecting on the way to a very remote hike up Mount Scabby at the bottom of the ACT, although its rusty and retro characteristic fitted in beautifully with the landscape. We assumed it did not contain ice cold beer as a reward for the gruelling hike.

Don’s response

Another one of those pictures that makes you smile. The amusing incongruity of the old fridge standing at the intersection of what appears to be a road on the right and a very long driveway to an even older house at the edge of a forested hill. Photographer Gavin Kellett’s image invites one to imagine a story to explain what, with its wide aspect ratio, is a scene with distinctly cinematic overtones.

Breakaways

By Steve Genesin

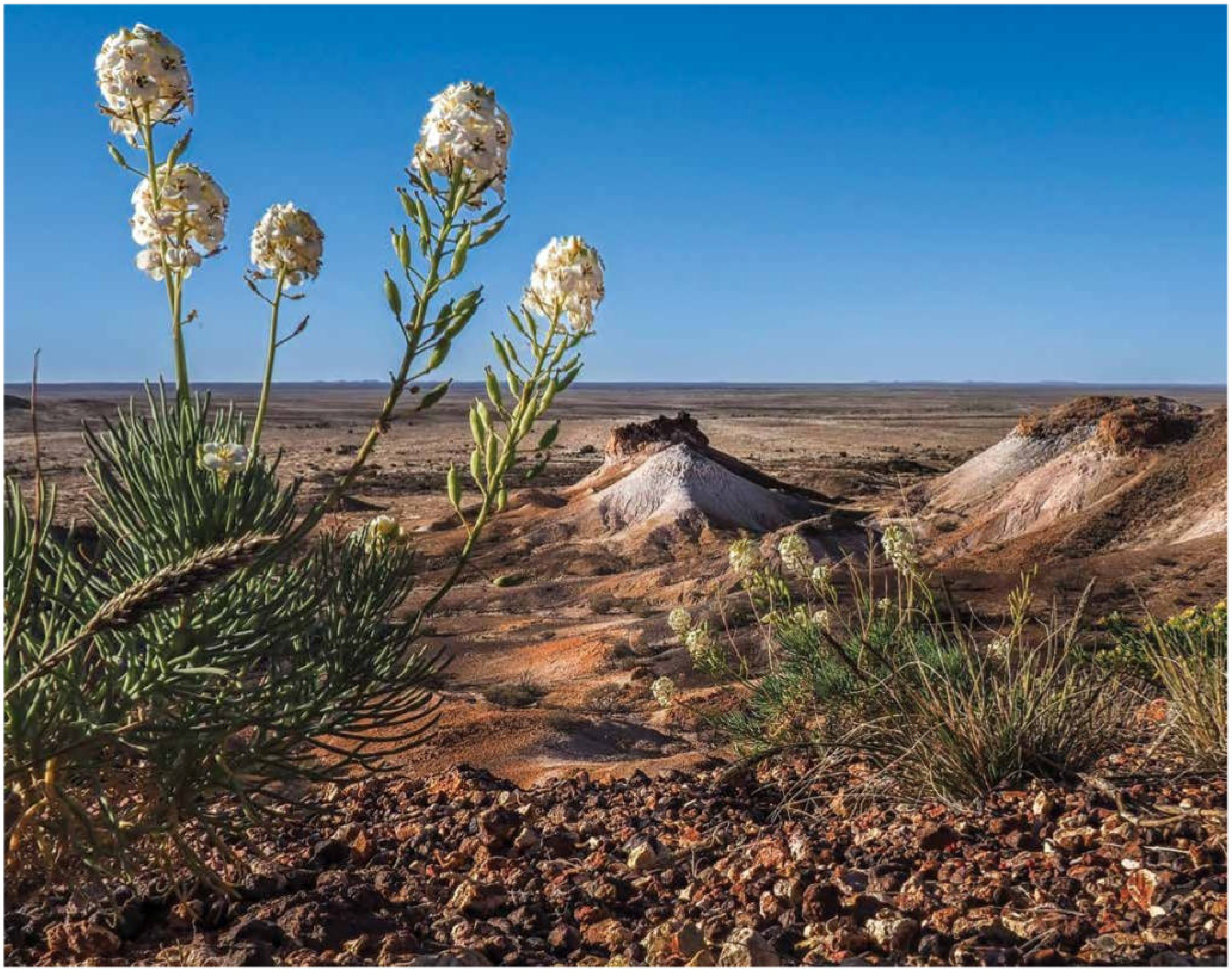
Olympus E-M1 Mark II; 12-100mm lens; 1/160s; f/11; ISO 100

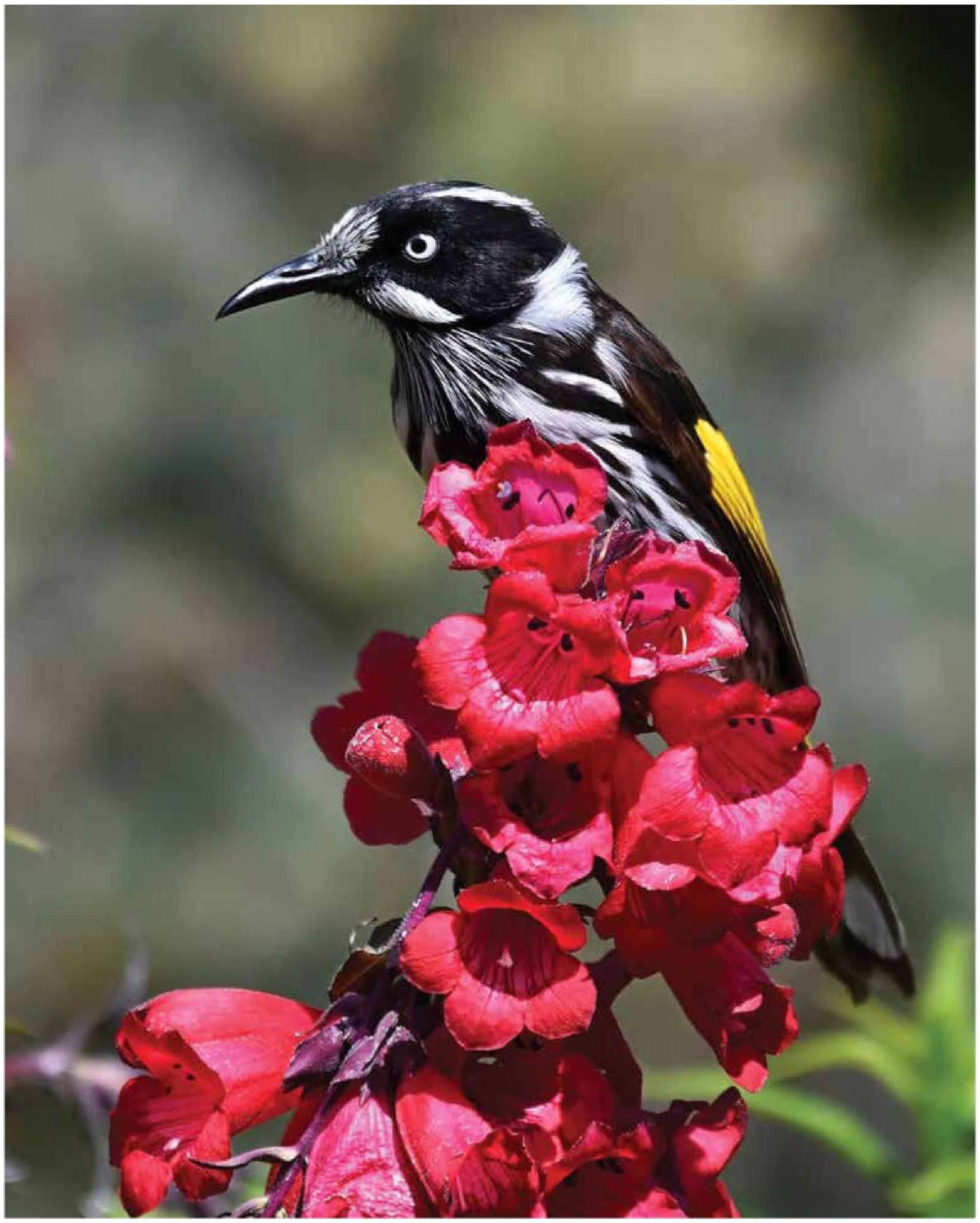
The Kanku-Breakaways has some iconic ranges of hills just out of Coober Pedy in South Australia. They are deep in colour and offer an opportunity to capture some stunning landscape images. On this occasion I framed a local wildflower in the shot, using focus stacking to try and have everything as sharp as possible.

Don's response

This is a beautiful example of the focus-stacking technique being applied thoughtfully. Were it not for the wildflowers in the foreground, the image would be much less interesting. Instead, what we have is the story of those green stems and creamy flowers contrasting with a stark and forbidding landscape.

Holding focus across a range that extends from a few centimetres in front of your lens to infinity can't be accomplished in a single exposure. As photographer Steve Genesin notes, one needs to take a sequence of images, each of which has a different plane of optimal focus. Steve's Olympus E-M1 has the capability to create the necessary focus stack in-camera, which is pretty handy when you're in the field. Happily, as long as you've taken a sequence with successive focus changes, the effect can also be created in post-production.





New Holland Honeyeater

By Ron Johnson

Nikon D7500; Sigma 150-600mm lens @ 600mm; 1/2500s; f/6.3; ISO 640; Hand held

Don's response

Photographer Ron Johnson sent two good pictures of New Holland Honeyeaters but those red blossoms earned this one the guernsey. Typical of Ron's work, the picture is technically beyond reproach. Exposure and detail are impeccable but what makes this come together for me is how he managed to capture the (undoubtedly brief) moment when his subject was in profile atop those theatrically red blooms. It wouldn't surprise me if Ron spent some considerable time waiting for this opportunity.

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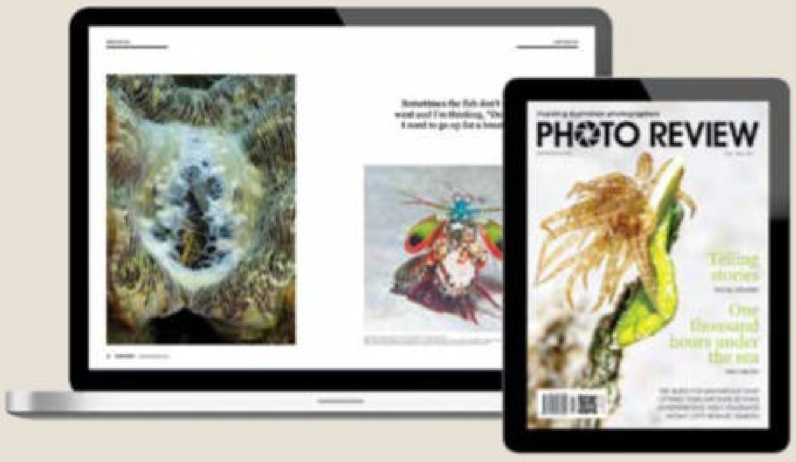

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OUR EDITOR ONCE AGAIN TURNS UP MORE FASCINATING, INSPIRING AND USEFUL LINKS FOR YOUR AMUSEMENT, CONSIDERATION AND EDIFICATION.

Meet Emilio Morenatti

▸ **www.bit.ly/pr95ne1**

It's somewhat unusual to see highlights from a single news photographer's work over the course of the preceding year like this piece on Associated Press chief photographer in Spain and Portugal, Emilio Morenatti. The feature which ran on the Atlantic magazine's website is a masterclass in the form of a 30-image portfolio. Look at each one carefully and you'll come away a better photographer.

New Yorker's 2022 in pictures

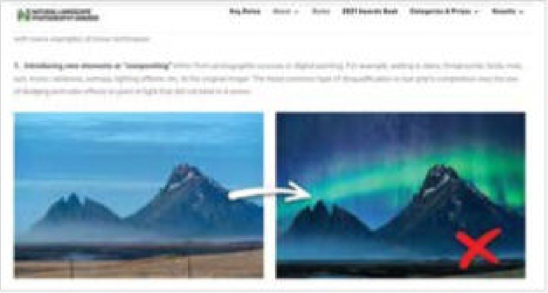
▸ **www.bit.ly/pr95ne2**

The New Yorker is perhaps best known for its big name, long form journalism and its stable of whimsically acerbic cartoonists, so it may come as a surprise to learn that it also has long been a publisher of superb editorial imagery and portraiture by some of the world's best photographers.

In view

▸ **www.bit.ly/pr95ne3**

The enthusiastic folks at the View Camera Australia website waved goodbye to 2022 with an online exhibition of recent works from their large format film shooting community. I think it's a fine thing that one can still buy 8x10 sheet film from the likes of Kodak and Ilford and that it's also still possible to find chemistry kits and exhaustive how-to articles about making platinum-palladium prints from those big negatives.



Fair comment

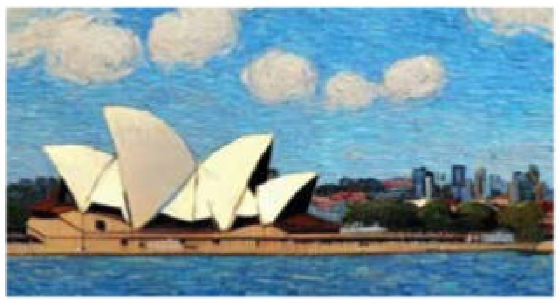
▸ **www.bit.ly/pr95ne4**

At the top of their contest rules page, the organisers of Natural Landscape Photography Awards state their Golden Rule: 'This competition aims to present the best of the natural landscape captured on film or digitally. Digital adjustments are allowed with the understanding that: "The integrity of the subject should be maintained." And then they set out in detail what degree of manipulation is acceptable for their contest. Thought provoking and worth a read. The Natural Landscape Photography Awards winners for 2022 can be seen here: www.bit.ly/pr95ne4pix

Chatting with the bot

▸ **www.bit.ly/pr95ne5**

OpenAI, an Artificial Intelligence company, introduced a free online chatbot it calls ChatGPT late last year. You can ask it to explain complex topics in simple language, get it to write you a story or have it help you game out a business plan. I think this could end up being as consequential to human civilization as the internet itself. Go have a play with it, and see what you think.



Artificial art?

▸ **www.bit.ly/pr95ne6**

The image above was created from the text prompt "Sydney Opera house on a sunny day with puffy white clouds in the style of van Gogh". The idea was your editor's and the "artist" was DeepAI's text to image generator. It took about 5 seconds to generate. And it will probably take years to fully comprehend what this means. Like ChatGPT, this is something you should try out yourself to experience where AI technology is taking us.

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